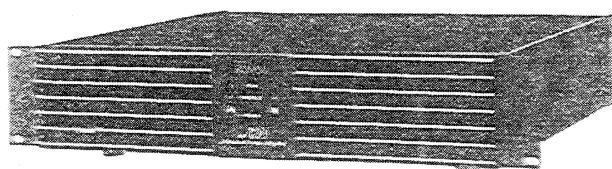
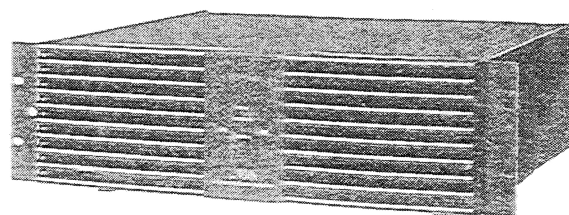


# Service Manual

## 2-channel Power Amplifier WP-1200/WP-1400



WP-1200



WP-1400

### SPECIFICATIONS

|                             | WP-1200                                                                                                                                                          | WP-1400                                                                                                                                                          |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply :              | WP-1200/B: 240V AC, 50/60 Hz<br>WP-1200/G: 230V AC, 50/60 Hz<br>WP-1400/B: 240V AC, 50/60 Hz<br>WP-1400/G: 230V AC, 50/60 Hz                                     |                                                                                                                                                                  |
| Power consumption :         | Approx. 770W at the rated output of 200W (RMS) + 200W (RMS)/4Ω                                                                                                   | Approx. 1500W at rated output of 400W (RMS) + 400W (RMS)/4Ω                                                                                                      |
| Rated power output :        | 120W + 120W (8Ω continuous output)<br>200W + 200W (4Ω continuous output)                                                                                         | 240W + 240W (8Ω continuous output)<br>400W + 400W (4Ω continuous output)                                                                                         |
| Mono-bridge output :        | 400W (8Ω continuous output)                                                                                                                                      | 800W (8Ω continuous output)                                                                                                                                      |
| Frequency response :        | 20 to 20,000 Hz +0, -0.5 dB (at 1W Output)                                                                                                                       |                                                                                                                                                                  |
| Total harmonic distortion : | 0.3% or less<br>(8Ω, 120W + 120W, 20 Hz to 20 kHz)<br>0.3% or less<br>(4Ω, 200W + 200W, 40 Hz to 20 kHz)<br>0.3% or less<br>((BRIDGE) 8Ω, 400W, 20 Hz to 20 kHz) | 0.3% or less<br>(8Ω, 240W + 240W, 20 Hz to 20 kHz)<br>0.3% or less<br>(4Ω, 400W + 400W, 40 Hz to 20 kHz)<br>0.3% or less<br>((BRIDGE) 8Ω, 800W, 20 Hz to 20 kHz) |
| Crosstalk :                 | 60 dB or more (20 kHz)                                                                                                                                           |                                                                                                                                                                  |

# Panasonic

|                              |                                                                                                                                                                  |                                                                                                                   |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Intermodulation distortion : | 0.3% or less<br>(4Ω, 200W, 60 Hz : 7 kHz = 4 : 1                                                                                                                 | 0.3% or less<br>(4Ω, 400W, 60 Hz : 7 kHz = 4 : 1                                                                  |
| SN ratio :                   | 100 dB or more (DIN)                                                                                                                                             |                                                                                                                   |
| Input level :                | +4 dB (continuously variable) balanced                                                                                                                           |                                                                                                                   |
| Voltage gain :               | 27.2 dB                                                                                                                                                          | 30.3 dB                                                                                                           |
| Input impedance :            | 40 kΩ (balanced)                                                                                                                                                 |                                                                                                                   |
| Connectors :                 | Input :<br>3-pin XLR-type connectors (female), and 1/4" tip-ring-sleeve phone jack<br>(3-bin connector)<br><br>Output :<br>Screw terminals, (5 way binding post) |                                                                                                                   |
| Dimensions :                 | 480 (W) × 102 (H) × 393 (D) mm<br>(Height includes rubber feet and depth<br>includes rear panel protection angle)                                                | 480 (W) × 146 (H) × 393 (D) mm<br>(Height includes rubber feet and depth<br>includes rear panel protection angle) |
| Weight :                     | Approx. 11.8 kg                                                                                                                                                  | Approx. 17.4 kg                                                                                                   |

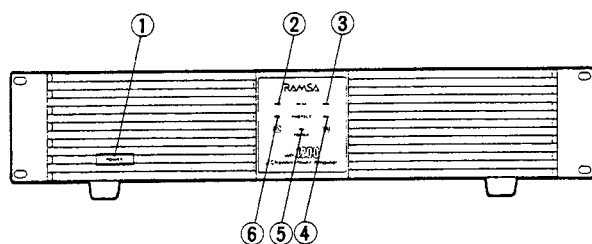
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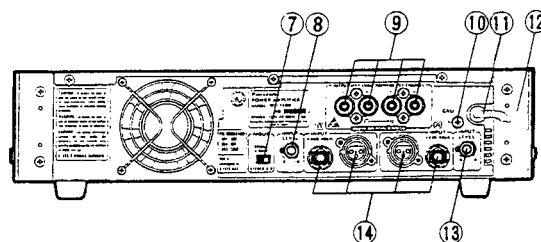
## MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS

### ■ WP-1200

#### • Front Panel :

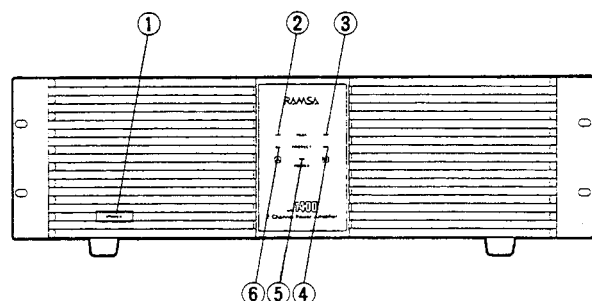


#### • Rear Panel :

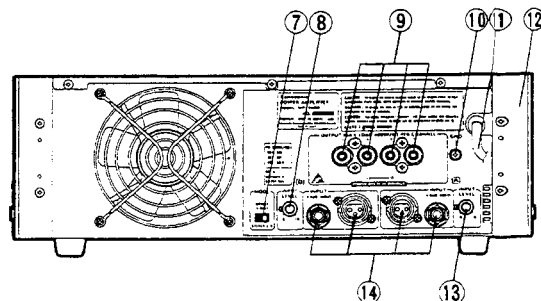


### ■ WP-1400

#### • Front Panel :



#### • Rear Panel :



#### 1. Power ON/OFF switch [POWER]

- The power amplifier reaches the operating conditions 4 to 6 seconds after turning on the power ON/OFF switch due to a muting circuit which prevents switching noise at power-up.

#### CAUTION :

When using the WP-1200/1400 in a system with other equipment such as a mixer, equalizer, and other signal processor, always turn the amplifier on last as switching noise from the other equipment can damage the speakers. Similarly, at system power-down always turn the amplifier off first.

#### 2. Peak level indicator [PEAK (red) A]

When this LED lights, the output signal of the A channel has reached its clipping level; possibly resulting in distortion. Should this occur, either adjust the output level of the mixer or adjust the power amplifier input Level control so that the PEAK LED turns off.

#### 3. Peak level Indicator [PEAK (red) B]

When this LED lights, the output signal of the B channel has reached its clipping level; possibly resulting in distortion. Should this occur, either adjust the output level of the mixer or adjust the power amplifier input Level control so that the PEAK LED turns off.

#### 4. Protect indicator [PROTECT (orange) B]

The LED indicates that the muting circuit for the B channel is activated and therefore sound cannot be produced at the output. This occurs for 4 to 6 seconds when the amplifier is turned on, and also during overheating or any malfunction that may cause damage to the speakers.

#### 5. Power ON indicator [POWER] (red)

Indicates that the amplifier is turned on.

#### 6. Protect indicator [PROTECT (orange) A]

The LED indicates that the muting circuit for the A channel is activated and therefore sound cannot be produced at the output. This occurs for 4 to 6 seconds when the amplifier is turned on, and also during overheating or any malfunction that may cause damage to the speakers.

#### 7. Mode selector [MODE]

[STEREO A.B, BRIDGE A ONLY]

Selects between STEREO mode (A in/A out, B in/B out) or BRIDGE mode (A in/A & B combined out). When using Bridge Mode the input signal must be applied to the A Channel only.

#### 8. Input level control [INPUT LEVEL B]

- When this control is at "10", the B channel will reach its rated power output when the input signal is at a level of + 4 dB.
- The calibrated markings on the front panel indicate the amount of attenuation applied to the input signal. The allows proper volume setting of the speakers when the input signal source is at its rated level.

#### 9. Output terminals

[OUTPUT MAX LOAD 400W/4Ω PER CHANNEL]

##### ■ WP-1200

- 8 ohms ..... 120W + 120W (RMS)
- 4 ohms ..... 200W + 200W (RMS)
- Bridge (8 ohms) ..... 400W (RMS)
- When using in bridge mode, the + side of the A CH output terminals becomes the hot side, and the + side of the B CH output terminal becomes the cold.

##### ■ WP-1400

- 8 ohms ..... 240W + 240W (RMS)
- 4 ohms ..... 400W + 400W (RMS)
- Bridge (8 ohms) ..... 800W (RMS)
- When using in bridge mode, the + side of the A CH output terminals becomes the hot side, and the + side of the B CH output terminal becomes the cold.

#### CAUTIONS :

- Do not connect the output channels in parallel.
- When using bridge connection, always use minimum 8 ohm speakers. Never connect the speakers between + and - of A CH, or + and - of B CH.

#### 10. Ground terminal [GND]

An external amplifier ground terminal.

#### 11. AC Power cord

#### 12. Rear panel protection angle

These angles protect the input and output terminals against damage. However, do not stand the power amplifier on them during performance.

#### 13. Input level control [INPUT LEVEL A]

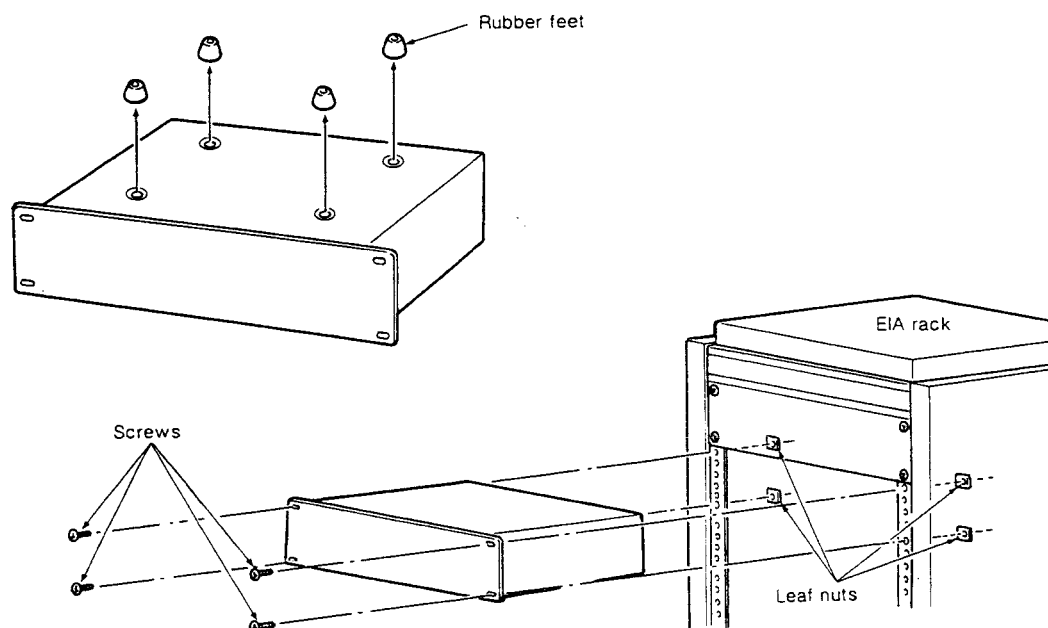
- When this control is at "10", the A channel will reach its rated power output when the input signal is at a level of + 4 dB. Use this control when running the amplifier in BRIDGE mode.
- The calibrated markings on the front panel indicate the amount of attenuation applied to the input signal. The allows proper volume setting of the speakers when the input signal source is at its rated level.

#### 14. Input connectors [INPUT A, B +4 dB, 40 kΩ]

- Two types of input connectors are provided : XLR-type connectors (female) and 1/4" tip-ring-sleeve phone jack.
- These input connectors are connected in parallel internally. Do not connect more than one input signal to these connectors at the same time.
- When using amplifier in bridge mono mode, connect the input signal to A channel only. Any signal connected to B channel will not be passed.

## RACK MOUNTING

1. Remove the screws which are inside the rubber feet, then detach the feet from the bottom of the amplifier.
2. Mount the power amplifier to the rack as shown with four optional rack mounting screws (not supplied, M5×12).



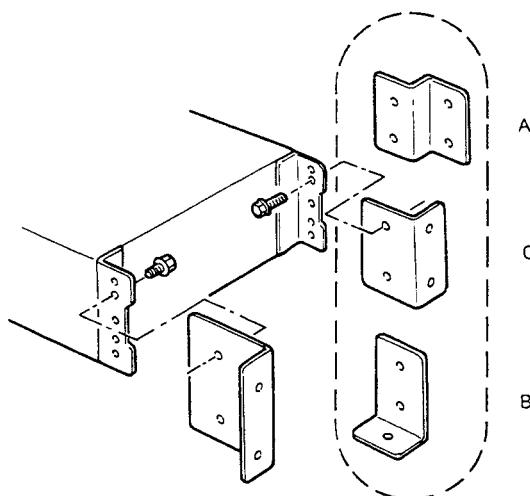
### Note:

When transporting the machine while mounted in a rack, the rear of the amplifier must be secured to the rack. Use an angle with a thickness of at least 2 mm.

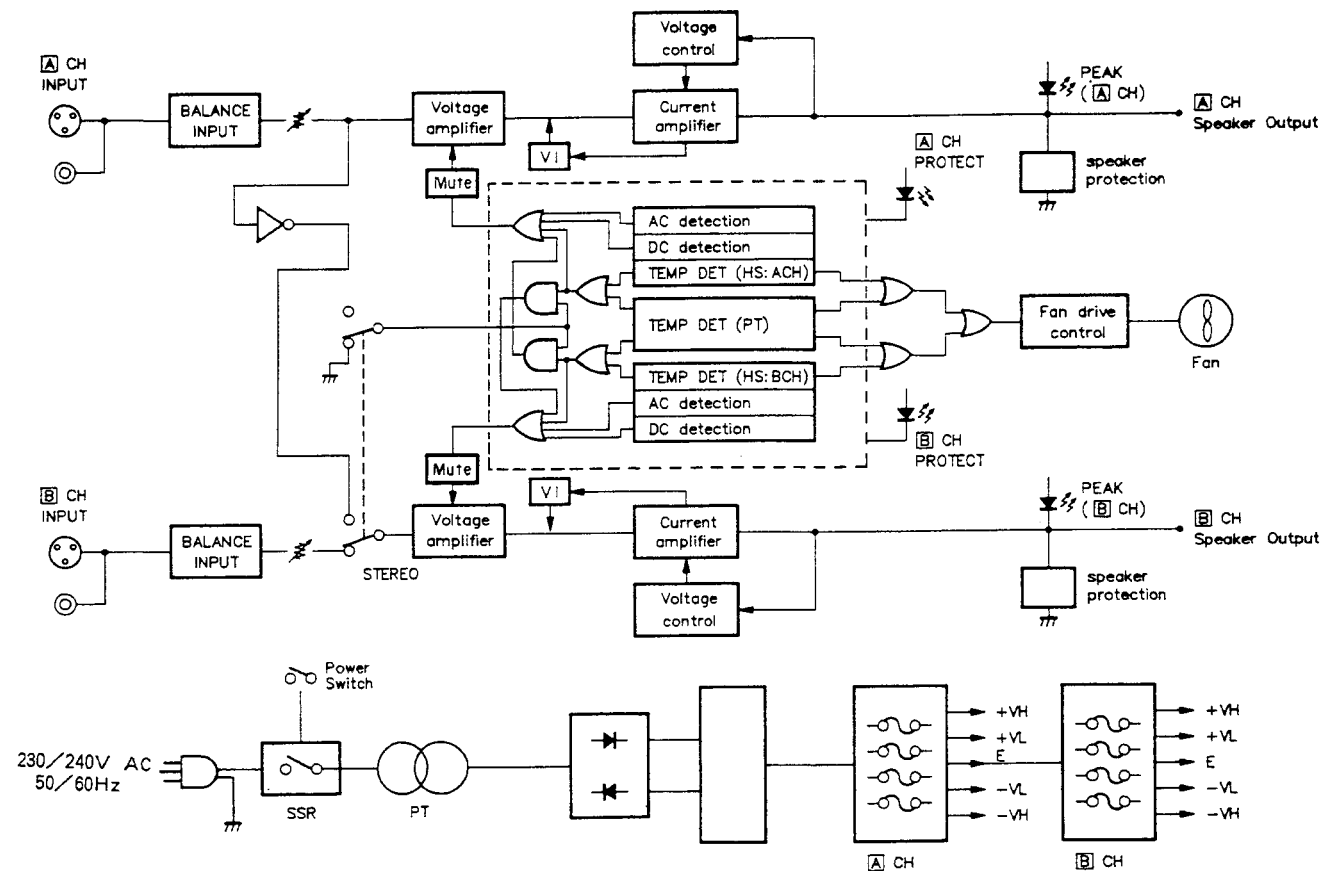
### Rear-fixing angle :

Local procurement

- A Rear-fixing angle for mounting side of rack.
- B Rear-fixing angle for mounting on bottom of rack.
- C Rear-fixing angle for mounting on rear of rack.



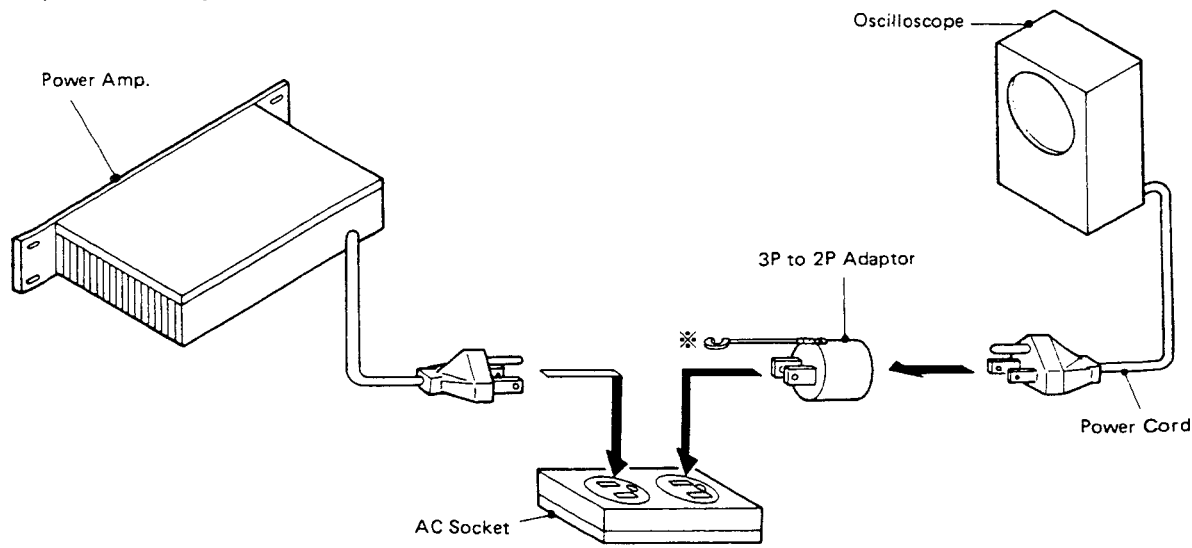
BLOCK DIAGRAM



HOW TO LIFT GROUND

CAUTION :

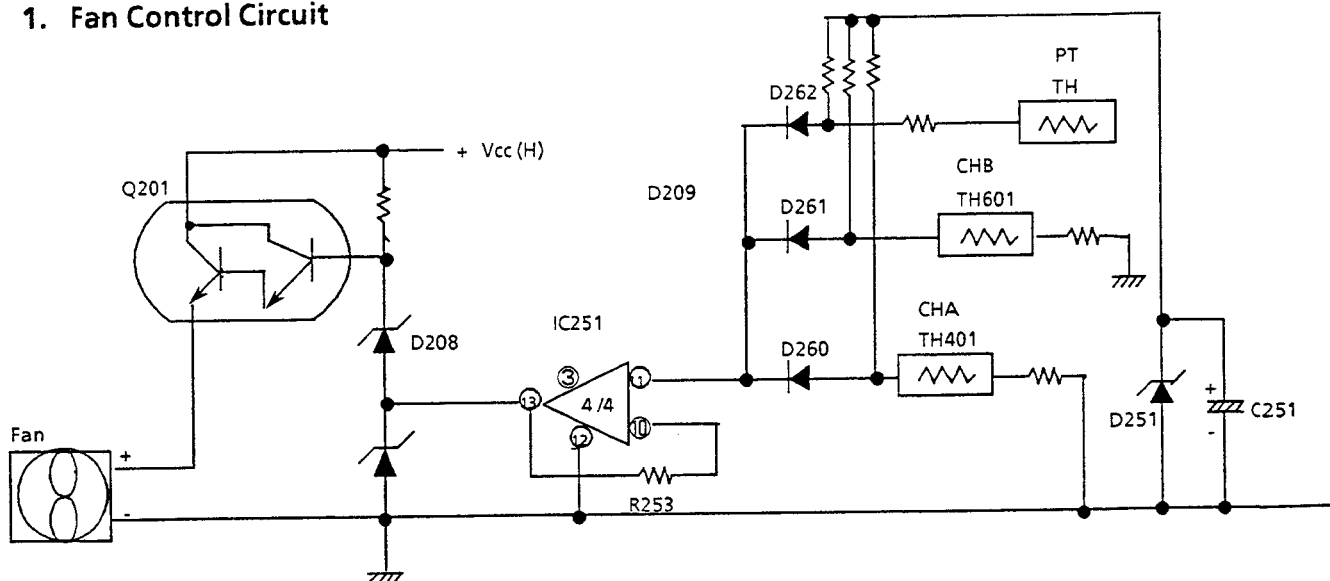
To avoid short-circuit across amplifier output terminals, be sure to ground-lift the ground terminal on the AC line cord of the amplifier or the test equipment when testing the amplifier in bridge mode.



※ This terminal must not contact any part of the outlet or plate.

## CIRCUIT DESCRIPTION

### 1. Fan Control Circuit



At normal operating temperature, the resistance of each thermistor is low.

The resulting low voltage at pin ⑪ of IC251 causes the voltage of pin ⑬ to go high, effectively putting a short-circuit across Zener diode D209.

The voltage across D208 is then applied to the base of Q201 which supplies the low level of current required to run the fan at low speed.

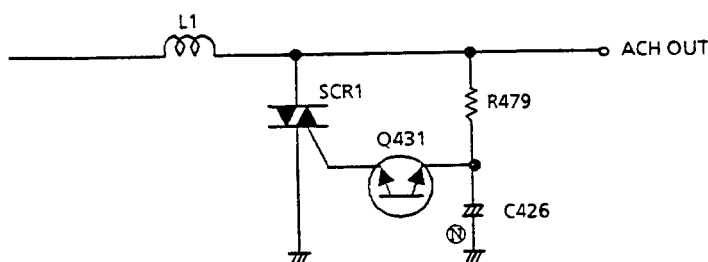
As the amplifier heats up, the resistance of each thermistor increases. The resulting high voltage at pin ⑪ of IC251 causes the voltage at pin ⑬ to go low, causing the high voltage across D208 + D209 to be applied to the base of Q201.

This increase in forward bias results in a higher current flow which rotates the fan at high speed.

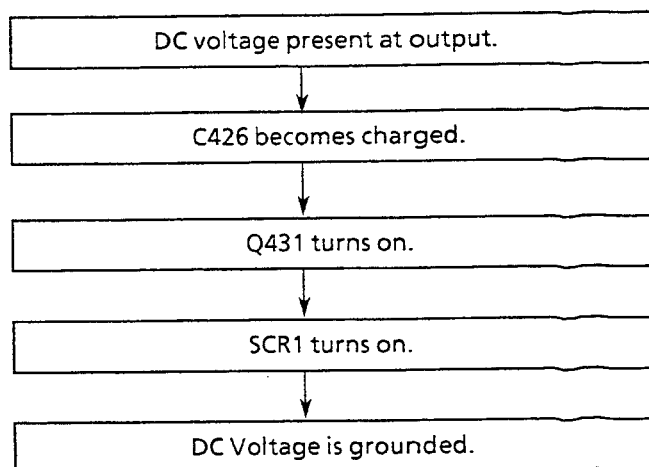
The fan speed may also vary between high and low, due to feedback resistor R253.

This resistor causes variation of the reference voltage at pin ⑩.

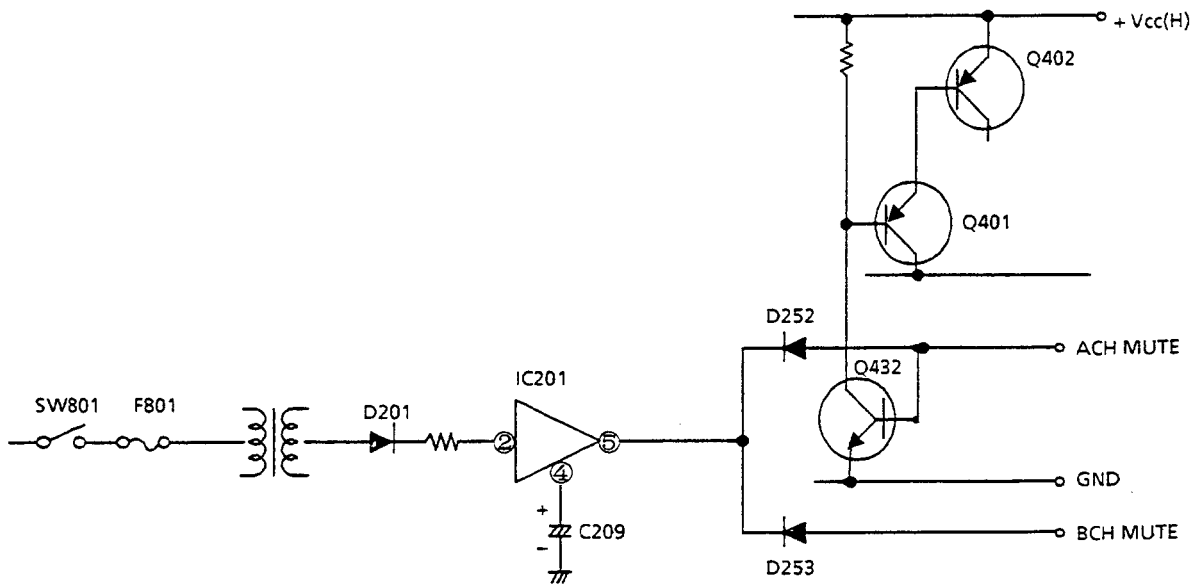
### 2. Crow-bar Circuit



This circuit protects the speaker by putting a short-circuit across the output if a DC voltage is present.

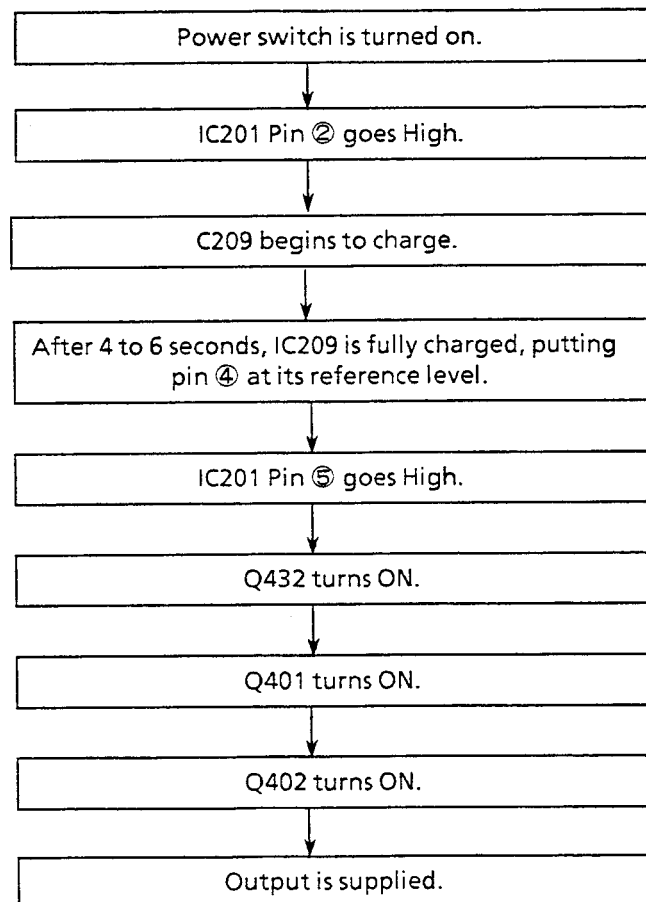


### 3. Muting Circuit

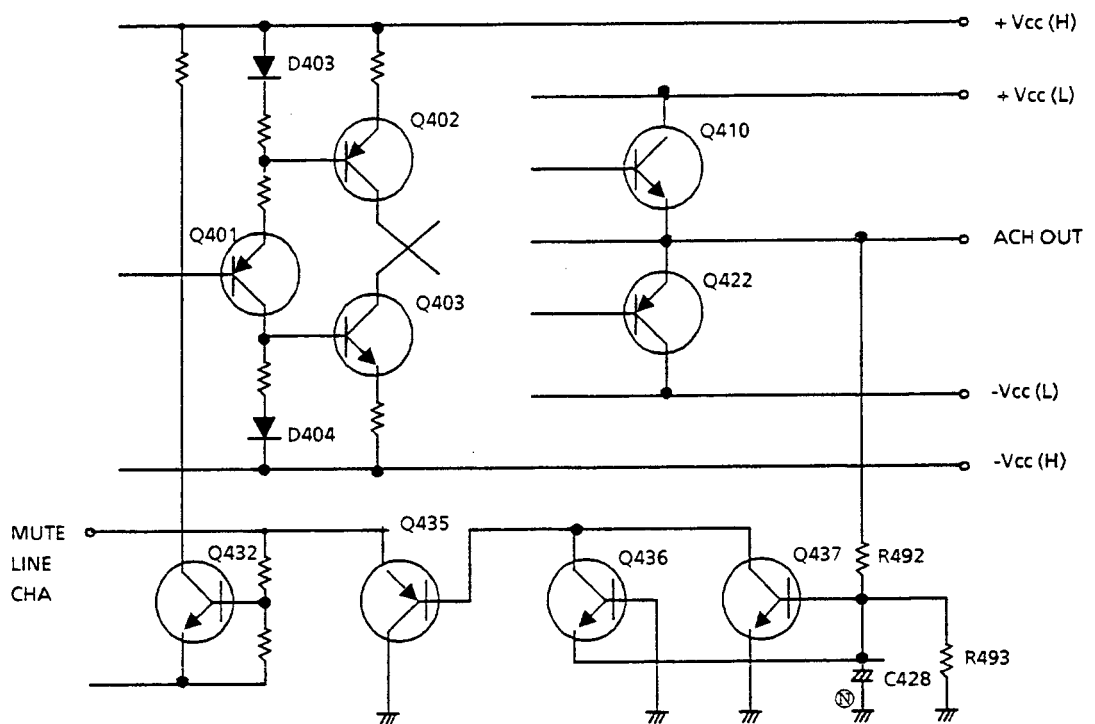


The output of amplifier becomes operational in 4 to 6 seconds after the power is turned on, and is cut-off immediately when the power switch is turned off.

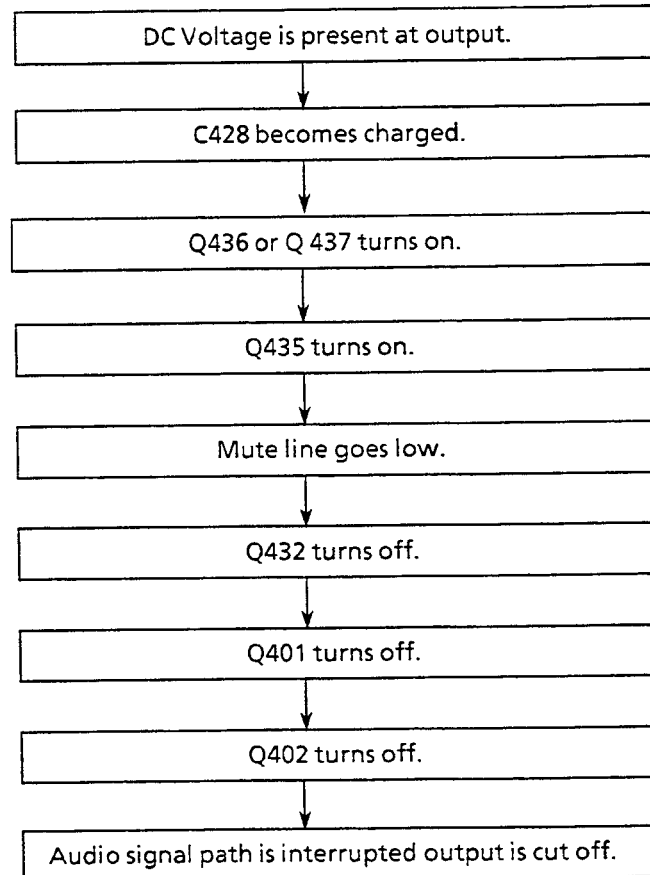
The above circuit prevents any electrical click noise from occurring when the amplifier is turned on and off.



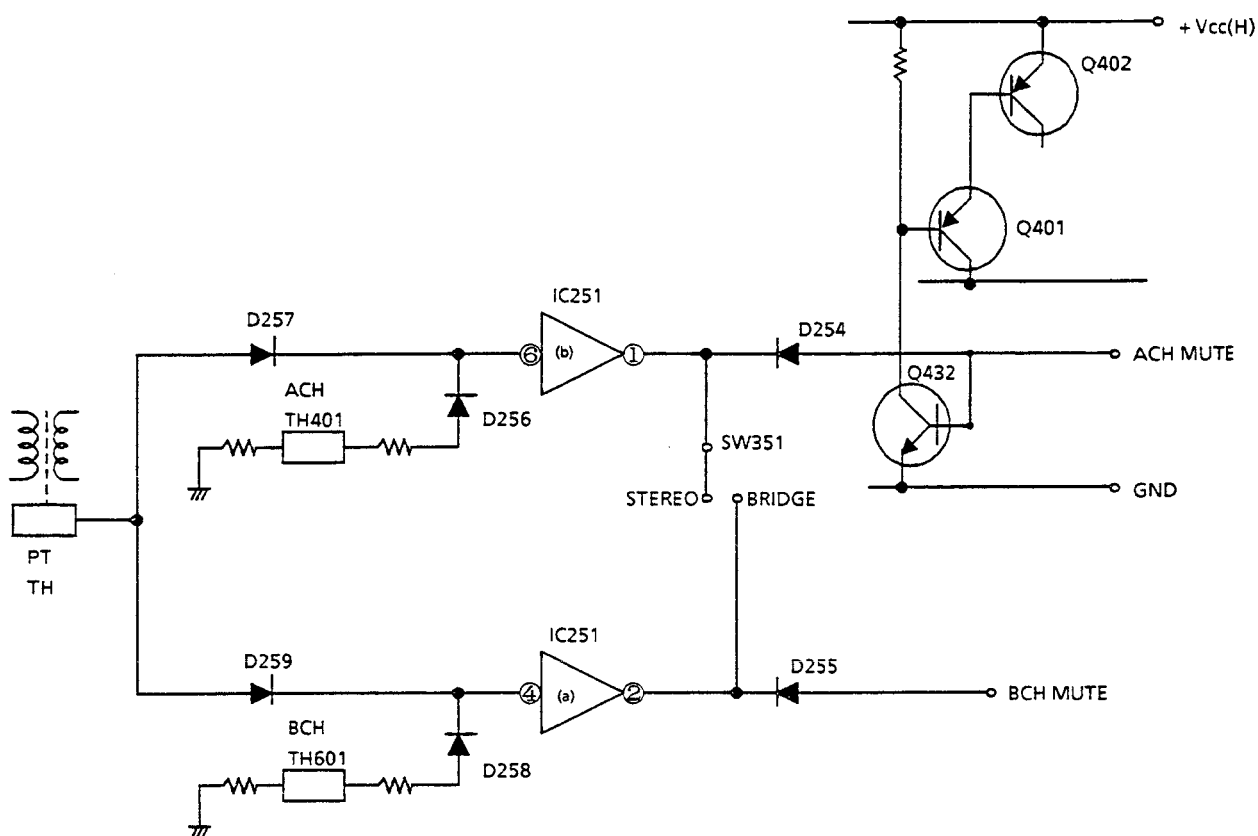
#### 4. DC detection Circuit



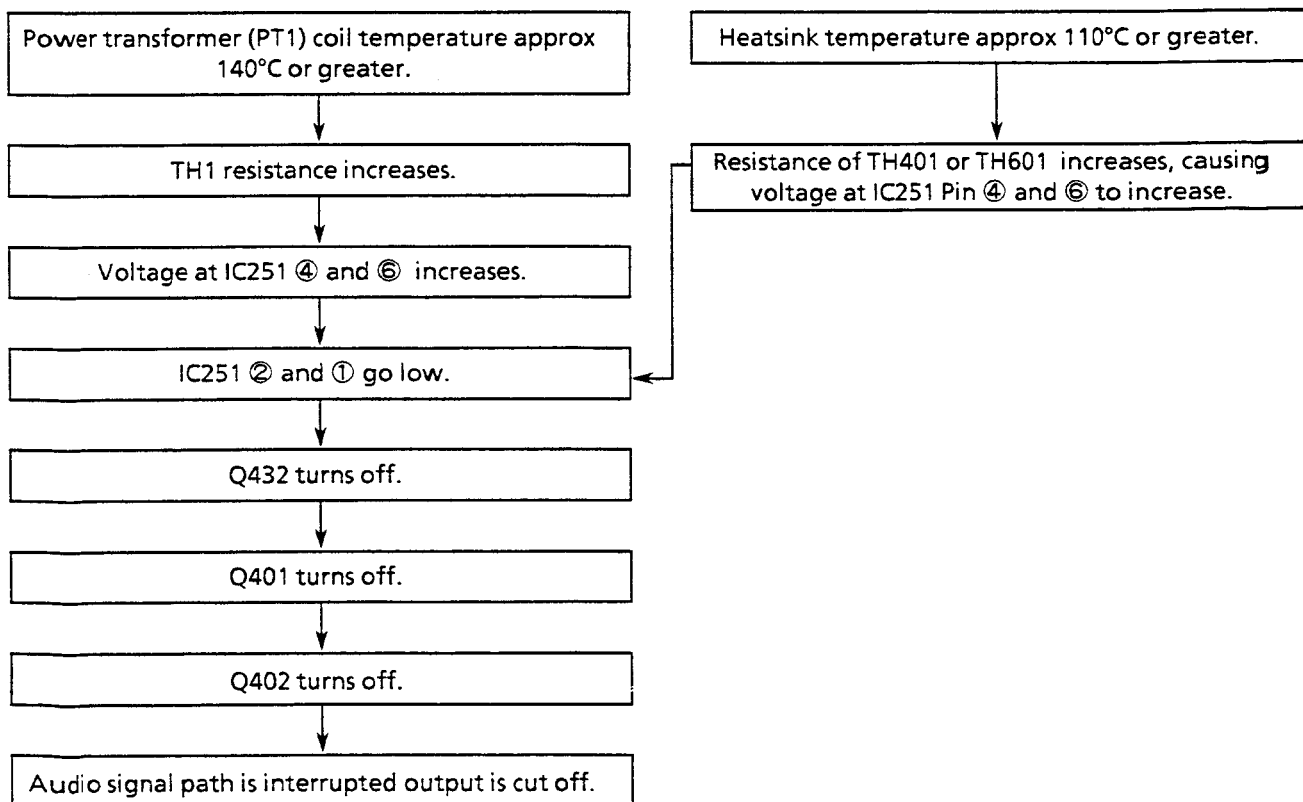
This circuit protects the speakers by cutting-off the output if DC is present.



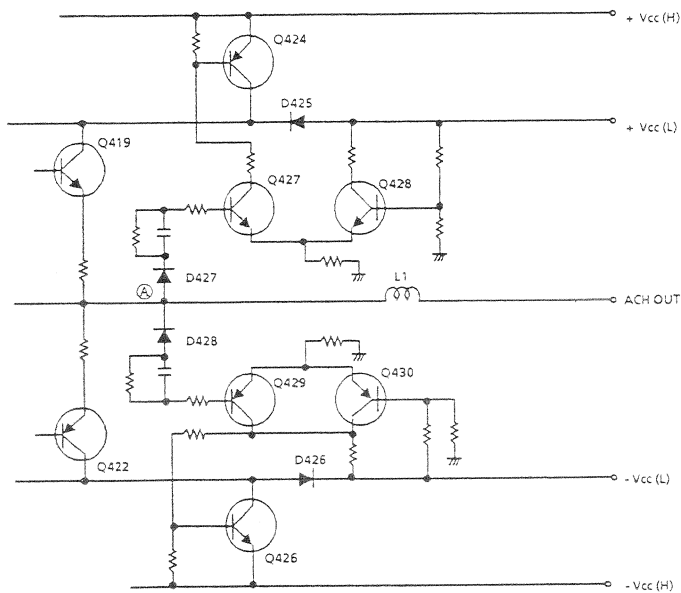
## 5. Temperature detection Circuit



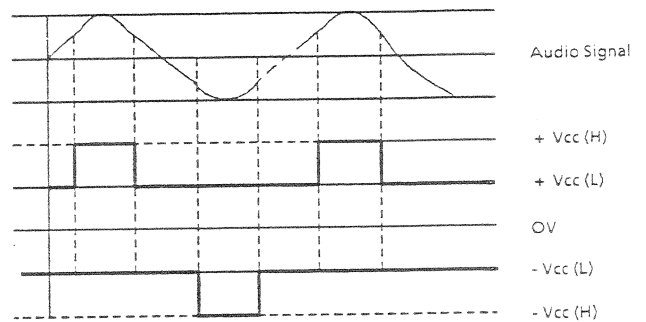
This circuit protects the output transistors and power transformer by cutting off the output if they begin to overheat.



## 6. Output Voltage Circuit



These amplifiers use a class H output. There are 2 levels of VCC High (H) and Low (L). VCC will automatically switch between (H) and (L), depending on audio signal level. This results in more efficient use of power, and less energy is wasted in the form of heat.



1.

Normal input signal level (voltage at Ⓐ is low).

D427 is turned off.

Q427 is turned off.

Q424 is turned off.

+ Vcc (L) is supplied to Q419.

2.

Higher input signal level  
(voltage at Ⓐ is increases).

D427 is turned on.

Q427 is turned on.

Q424 is turned on.

+ Vcc (H) is supplied to Q419.

3.

Normal input signal level (voltage at Ⓐ is low).

D428 is turned off.

Q429 is turned off.

Q426 is turned off.

-Vcc (L) is supplied to Q422.

4.

Higher input signal level  
(voltage at Ⓐ is decrease).

D428 is turned on.

Q429 is turned on.

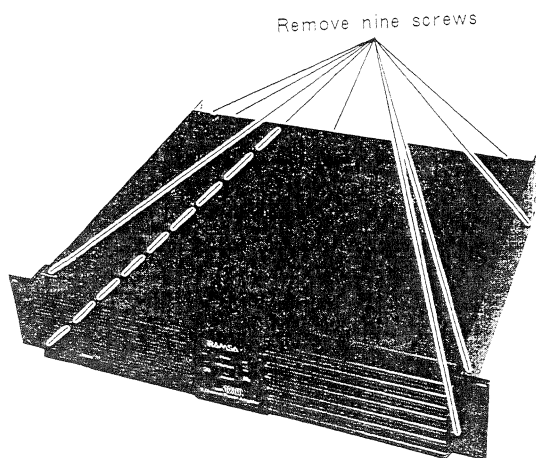
Q426 is turned on.

-Vcc (H) is supplied to Q422.

## DISASSEMBLY PROCEDURE

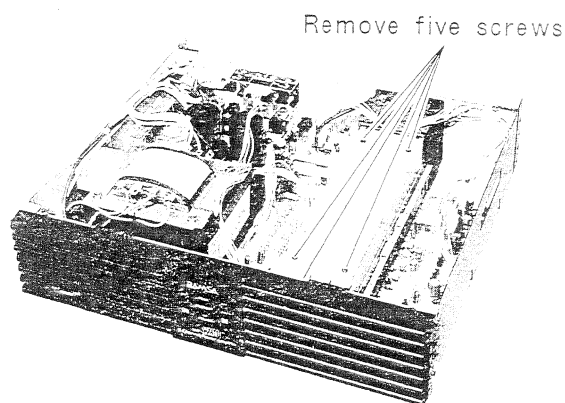
### ■ UPPER COVER REMOVAL

- Remove nine screws and remove the upper cover.

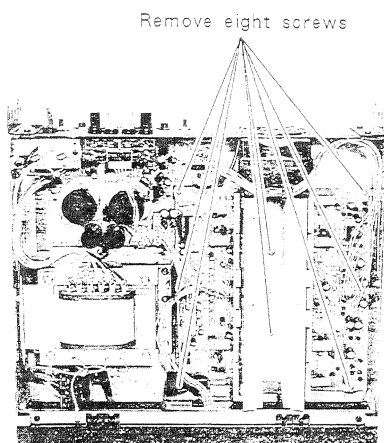


### ■ HEATSINK BLOCK REMOVAL

- Disconnect the connectors from power amp board.
- Remove five screws and remove the heatsink cover.



- Remove eight screws and remove the heatsink block.



## ADJUSTMENT PROCEDURE

### EQUIPMENT NEEDED : DIGITAL DC VOLTMETER

#### PREPARATION

1. Remove the upper cover. (Refer to "Disassembly")
2. Do not connect any audio signal to the INPUT TERMINAL.
3. Disconnect the speakers from the output terminals.
4. Then turn the power switch on and allow the amplifier to warm up for a few minutes.

#### BIAS ADJUSTMENT

This adjustment must be performed when amplifier is cold.

1. Under no signal and no load condition, connect the  $\oplus$  terminal of the digital DC voltmeter to Pin 1 of CN404 and the  $\ominus$  terminal to Pin 3 of CN404 on the Power Circuit Board.
2. Adjust VR401 on the Power A Circuit Board so that the voltage becomes 3 mV.
3. Repeat the adjustment on the Power Circuit Board by connecting the  $\oplus$  terminal of the DC voltmeter to Pin 1 of CN604 and the  $\ominus$  terminal to Pin 3 of CN604. Adjust VR601 so that the voltage becomes 3 mV.

## PERFORMANCE CHECK

After performing any repairs to the power amplifier, make the following measurements. Should the measured results differ from those shown, then refer to the adjustment procedures on the indicated pages.

#### 1. POWER OUTPUT/THD

Procedure : a). Connect a 4-ohm load across the CHANNEL A speaker output terminals.

b). Set attenuator control on rear panel to "10" (maximum).

c). Apply a 20 kHz sine wave to the CHANNEL A input. (Stereo Mode).

d). Adjust the signal level so that the voltage across the 4-ohm load indicates that the amplifier is at its rated output.

Power level :

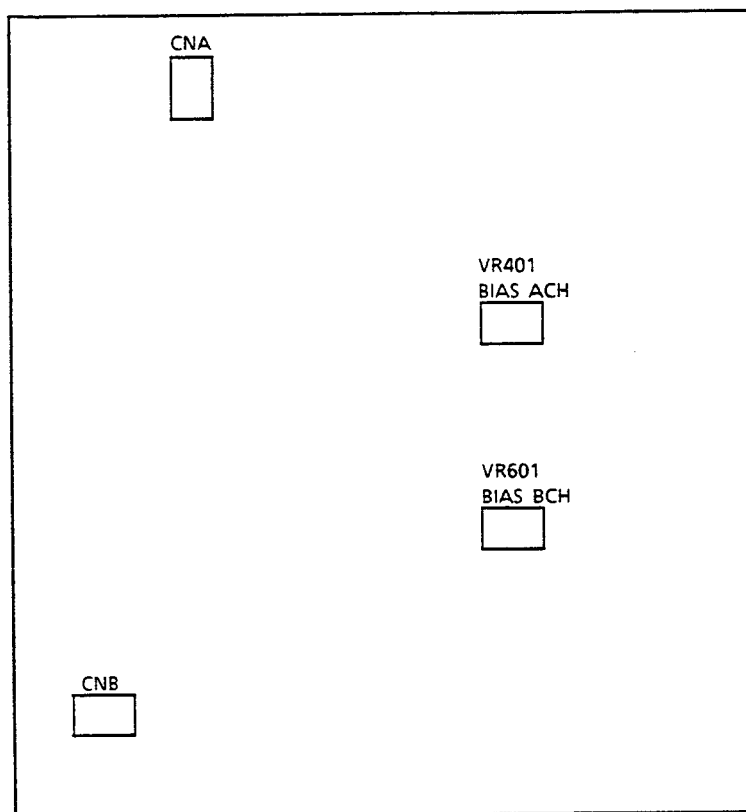
WP-1200 ... 28.3 VOLTS (400 WATTS)

WP-1400 ... 40 VOLTS (400 WATTS)

e). Measure THD at the output.

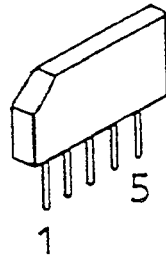
THD should be 0.3% or less.

f). Repeat steps a) - c) for Channel B.

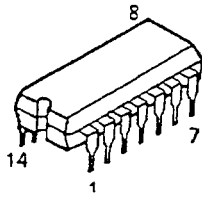
**LOCATION OF TEST POINT AND ADJUSTING CONTROL****POWER AMP BOARD (components view)**

APPEARANCE OF IC, TRANSISTOR AND DIODE

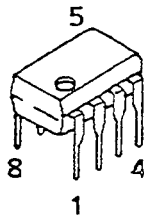
YWM51957BL



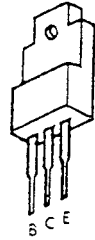
YWNJM2901N



YWNJM2068DD



2SD1276-QR

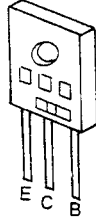


2SA1123  
2SA1127-ST  
2SA921-ST



2SC2634-ST  
2SC1980-ST  
2SC2631-RS

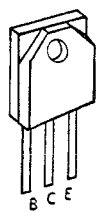
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2SC3503-EF  
2SC3116



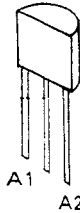
2SA1006B-PQ  
2SC2336B-PQ



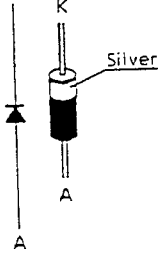
2SA12940YS  
2SC32630YS  
2SD2083  
2SB1383



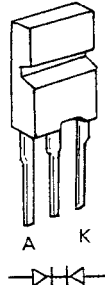
BS08A



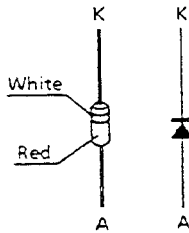
YWAM01



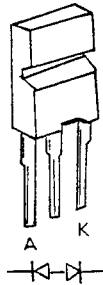
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YWFMG33S



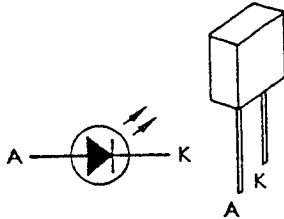
MA165



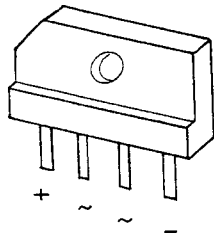
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YWFMG33R



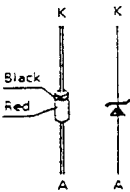
YWBR7351K



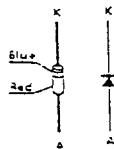
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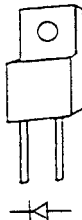
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YWMTZ11B  
YWMTZ12B  
YWHSEB2TD

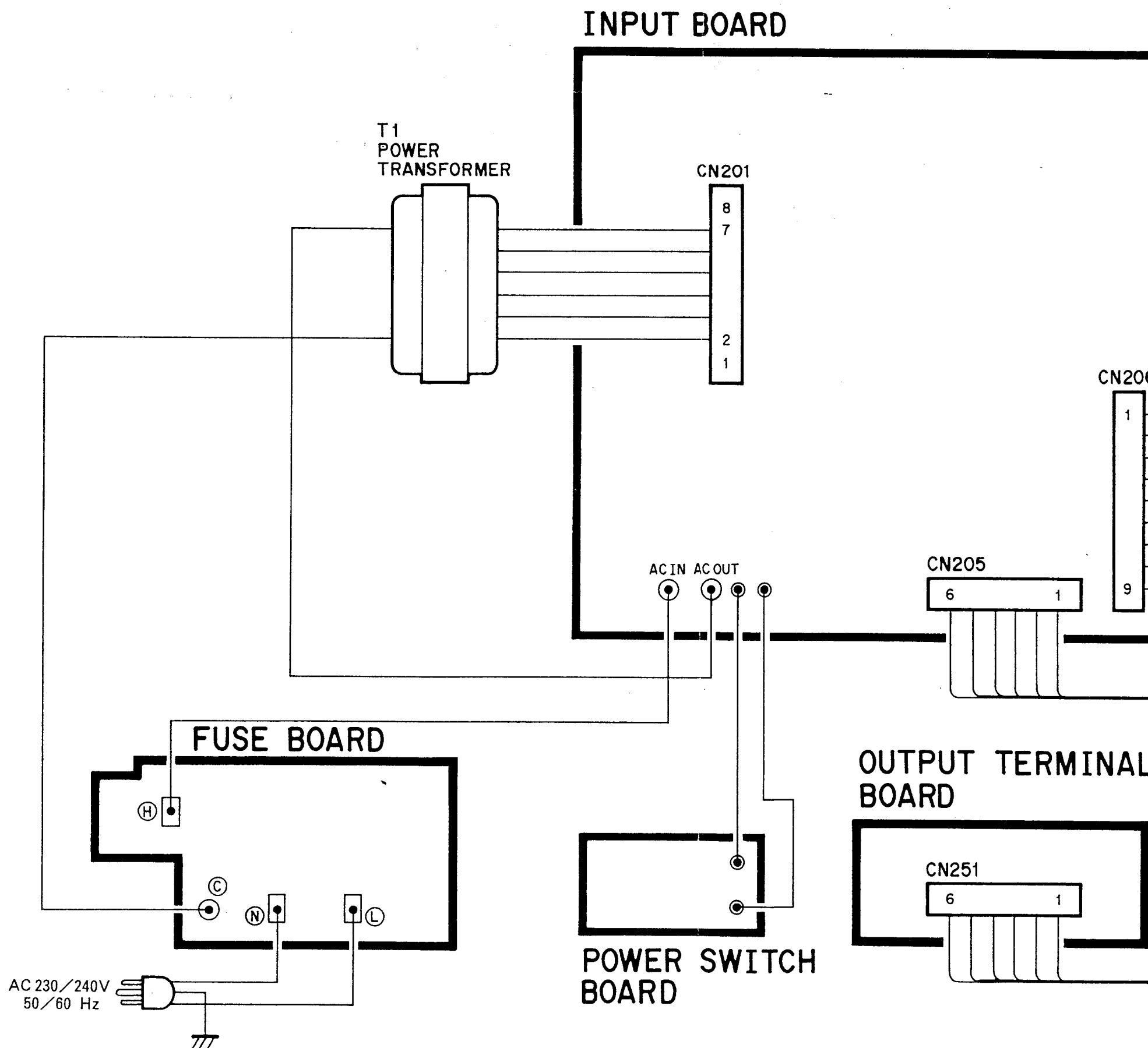


MA188

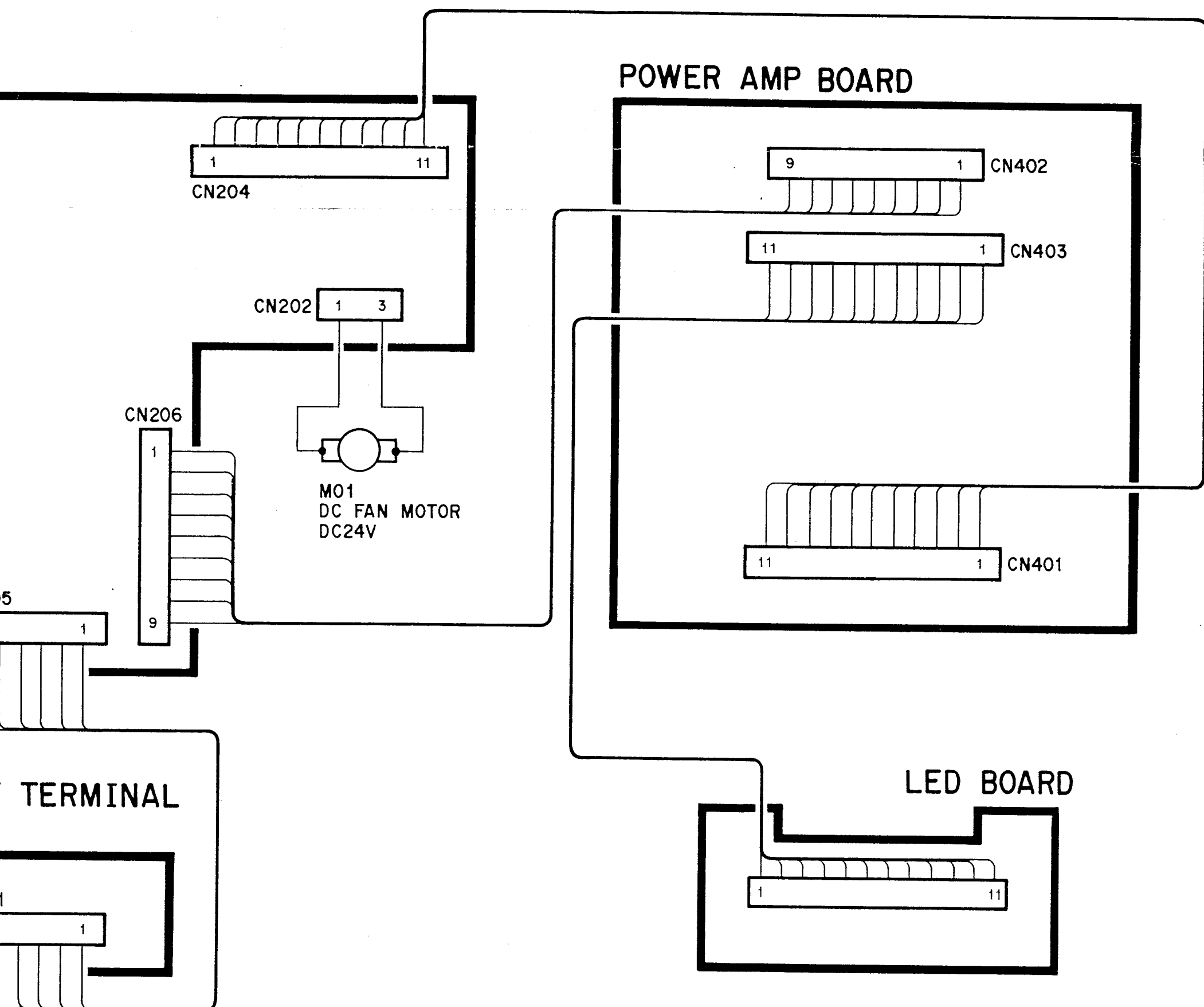


YWFMLG22S





# WIRING



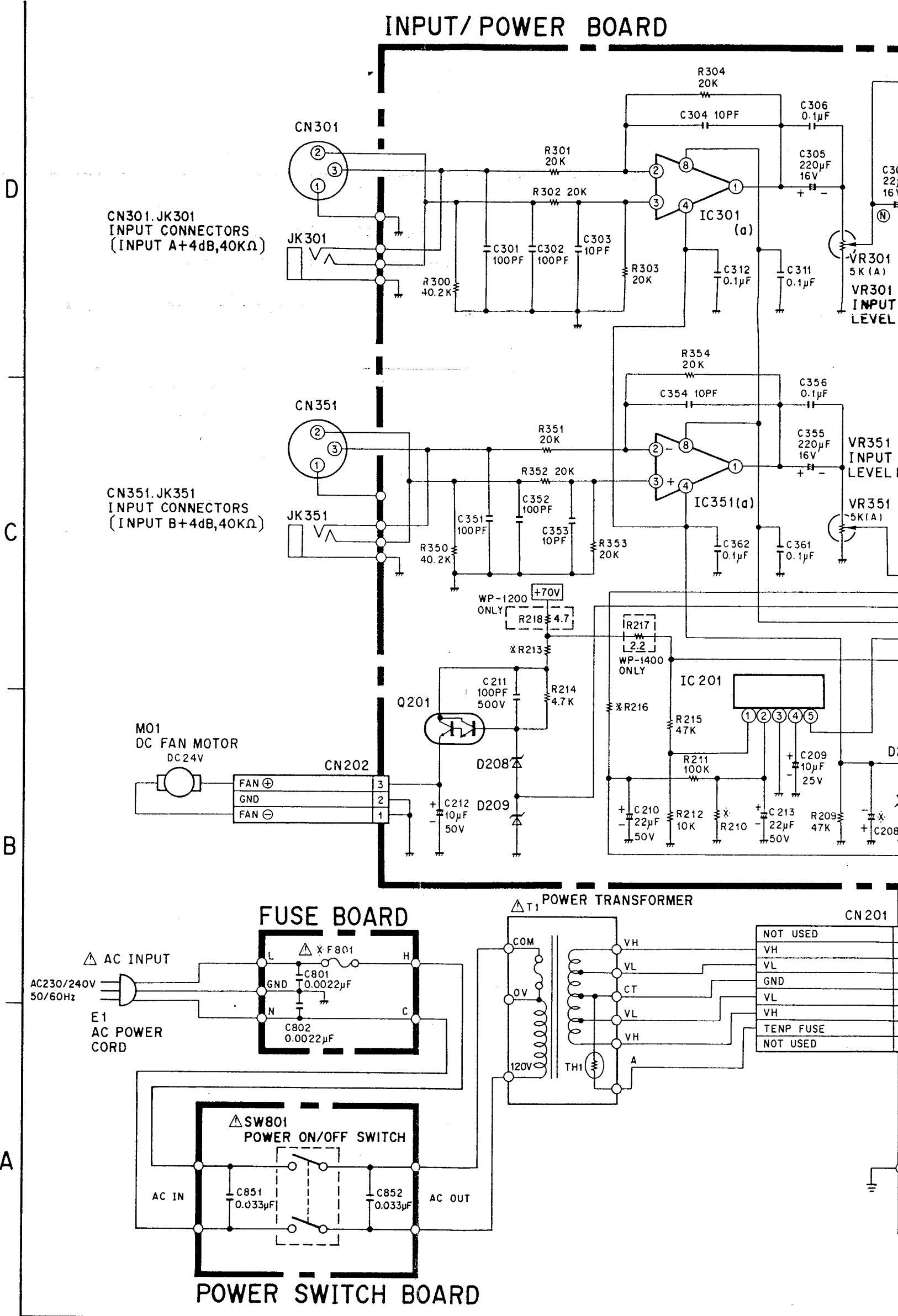
<Index>

INPUT BOARD

|       |             |
|-------|-------------|
| IC201 | C3          |
| IC251 | B5,C5,D4,B4 |
| IC301 | B4,D4       |
| IC351 | D3,D4       |
| Q201  | C3,C4       |
| D201  | B2          |
| D202  | B4          |
| D203  | B4          |
| D204  | B4          |
| D206  | B4          |
| D207  | B3          |
| D208  | B2          |
| D209  | B2          |
| D251  | C5          |
| D252  | C4          |
| D253  | C4          |
| D254  | C5          |
| D255  | C5          |
| D256  | D5          |
| D257  | D5          |
| D258  | D5          |
| D259  | D5          |
| D260  | D5          |
| D261  | D5          |
| D262  | D5          |

|       | IC201 | IC251 | IC301 | IC351 |
|-------|-------|-------|-------|-------|
| Pin 1 | 3.2   | 9.7   | 0     | 0     |
| 2     | 3.3   | 9.7   | 0     | 0     |
| 3     | 0     | 14.7  | 0     | 0     |
| 4     | 1.2   | 0.5   | -14.4 | -14.4 |
| 5     | 9.8   | 6.5   | 0     | 0     |
| 6     |       | 0.5   | 0     | 0     |
| 7     |       | 6.5   | 0     | 0     |
| 8     |       | 0.3   | 14.4  | 14.4  |
| 9     |       | 0.2   |       |       |
| 10    |       | 0.6   |       |       |
| 11    |       | 0.5   |       |       |
| 12    |       | 0     |       |       |
| 13    |       | 0     |       |       |
| 14    |       | 0.3   |       |       |

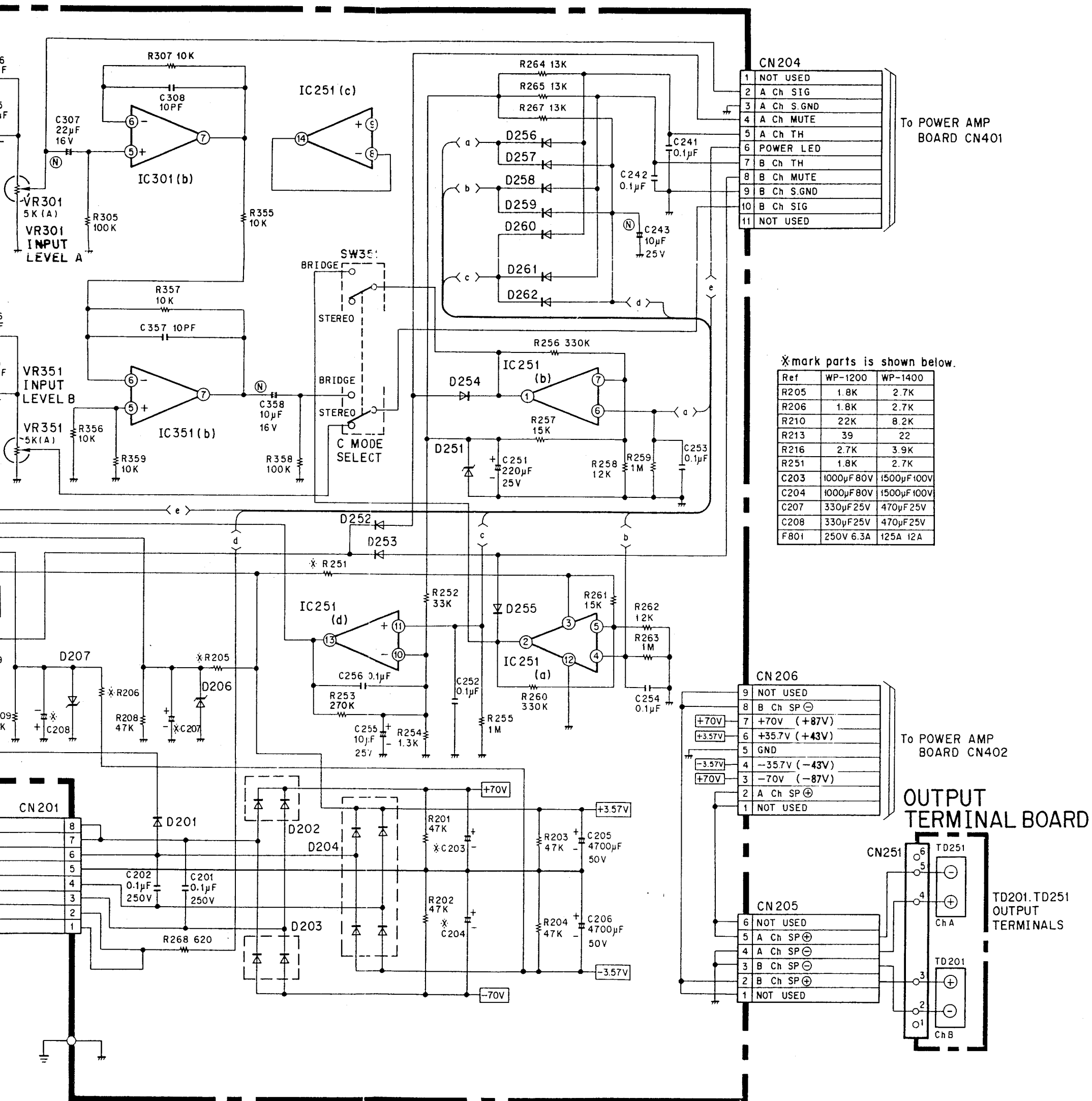
|      | B              | C              | E             |
|------|----------------|----------------|---------------|
| Q201 | 12.8<br>(10.0) | 68.2<br>(42.0) | 11.7<br>(9.0) |



1

2

3



## INPUT/POWER BOARD



|       |    |
|-------|----|
| IC201 | E3 |
| IC251 | D7 |
| IC301 | D4 |
| IC351 | D6 |
| Q201  | E3 |
| D201  | D3 |
| D202  | C3 |
| D203  | D3 |
| D204  | D3 |
| D206  | D6 |
| D207  | D6 |
| D208  | E3 |
| D209  | E3 |
| D251  | D6 |
| D252  | E6 |
| D253  | E6 |
| D254  | E6 |
| D255  | D6 |
| D256  | D7 |
| D257  | D7 |
| D258  | D7 |
| D259  | D7 |
| D260  | E7 |
| D261  | E7 |
| D262  | D7 |

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POWER AMP BOARD

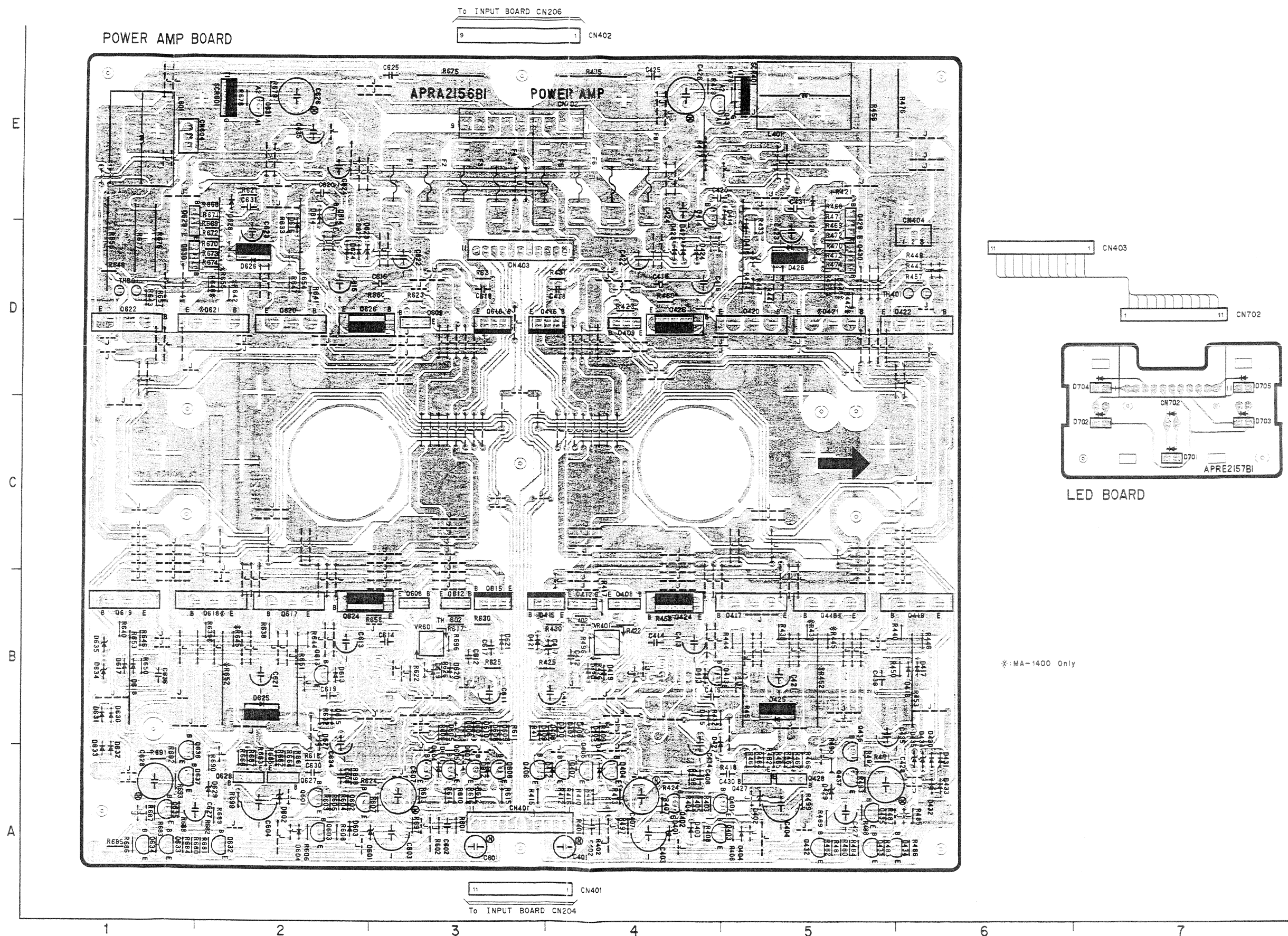
|      |                   |
|------|-------------------|
| Q401 | A5                |
| Q402 | A4                |
| Q403 | A5                |
| Q404 | A4                |
| Q405 | A4                |
| Q406 | A3                |
| Q407 | A4                |
| Q408 | B4                |
| Q409 | D4                |
| Q412 | B4                |
| Q413 | B5                |
| Q414 | D4                |
| Q415 | B4                |
| Q416 | D4                |
| Q417 | B5                |
| Q418 | B5 (WP-1400 only) |
| Q419 | B6                |
| Q420 | D5                |
| Q421 | D5 (WP-1400 only) |
| Q422 | D6                |
| Q424 | B4                |
| Q426 | D4                |
| Q427 | A5                |
| Q428 | A5                |
| Q429 | D5                |
| Q430 | D5                |
| Q431 | E5                |
| Q432 | A5                |
| Q433 | A5                |
| Q434 | A6                |
| Q435 | A5                |
| Q436 | A5                |
| Q437 | A5                |
| D401 | A4                |
| D402 | A5                |
| D403 | A4                |
| D404 | A5                |
| D405 | B4                |
| D406 | B4                |
| D407 | B4                |
| D408 | B4                |
| D409 | B4                |
| D410 | B4                |
| D411 | A4                |
| D412 | A4                |
| D413 | B4                |
| D414 | D5                |
| D415 | B4                |
| D416 | D5                |
| D417 | B6                |
| D418 | B6                |
| D419 | B4                |
| D420 | B4                |
| D421 | B3                |
| D422 | D4                |
| D423 | D4                |
| D424 | D4                |
| D425 | B5                |
| D426 | D5                |
| D427 | B5                |
| D428 | E5                |
| D429 | A5                |
| D430 | A6                |
| D431 | A6                |
| D432 | A6                |
| D433 | A6                |
| D434 | A6                |
| D435 | A6                |

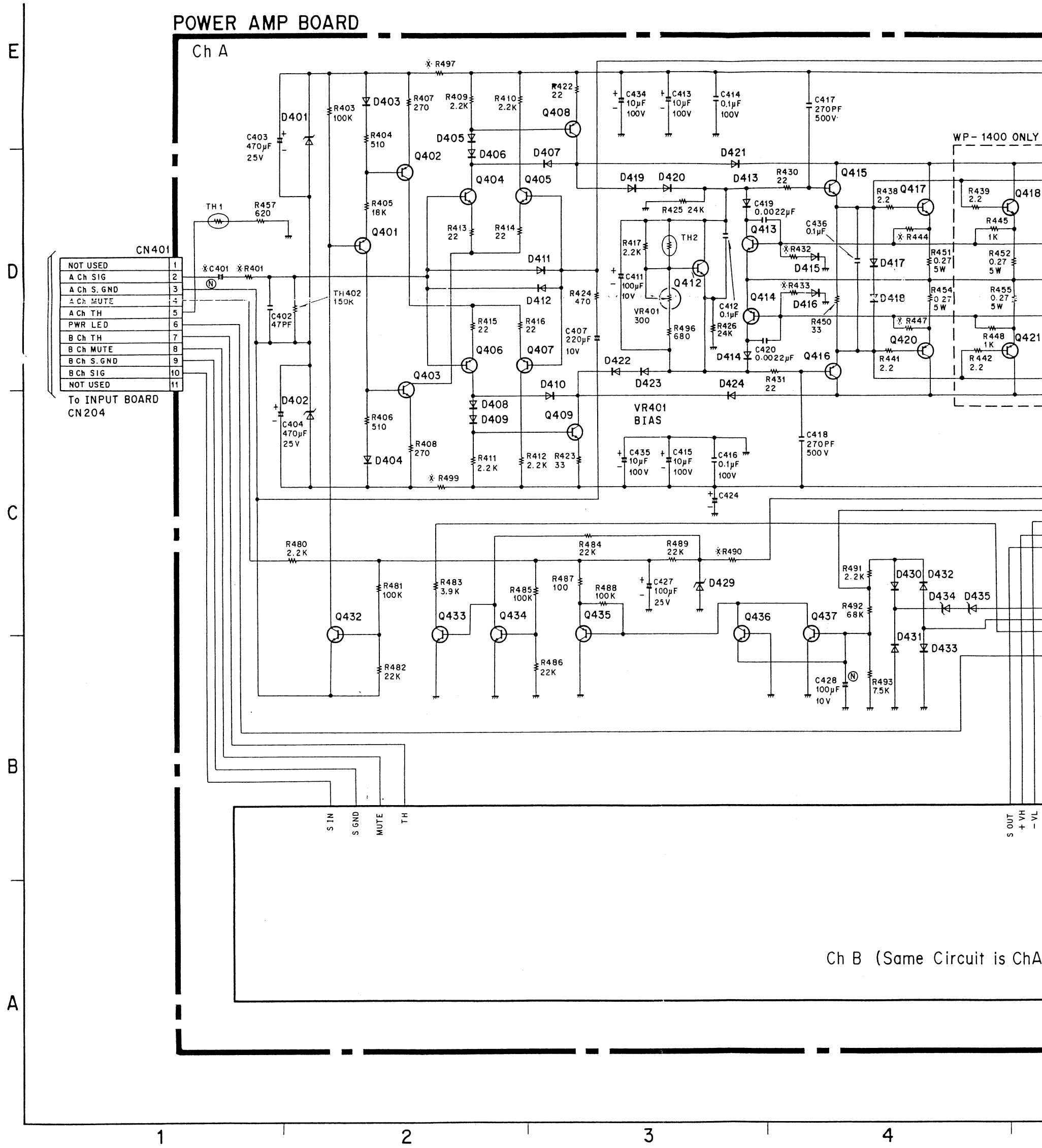
LED BOARD

|      |    |
|------|----|
| D701 | C7 |
| D701 | C7 |
| D703 | C7 |
| D704 | D7 |
| D705 | D7 |

WP-1200/1400 WP-1200/1400

CONDUCTOR VIEW OF POWER BOARD WP-1200/1400



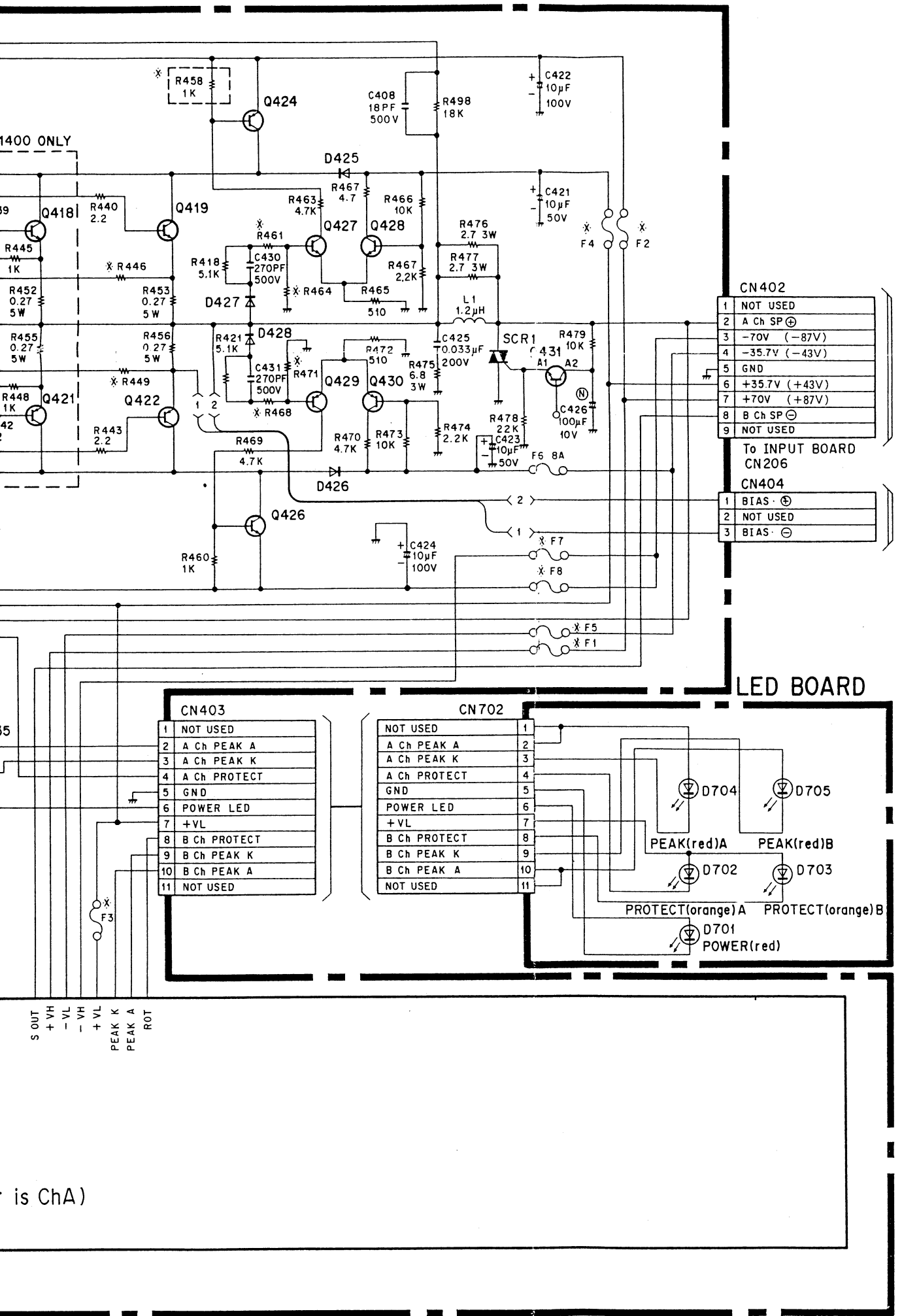


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**POWER AMP BOARD**

|      |    |      |                   |      |                   |      |    |      |    |      |    |      |
|------|----|------|-------------------|------|-------------------|------|----|------|----|------|----|------|
| Q401 | D2 | Q408 | E3                | Q419 | D5                | Q430 | D6 | D403 | E2 | D411 | D3 | D420 |
| Q402 | D2 | Q409 | C3                | Q420 | D4                | Q431 | D6 | D404 | C2 | D412 | D3 | D421 |
| Q403 | D2 | Q412 | D3                | Q421 | D5 (WP-1400 only) | Q432 | C2 | D405 | E2 | D413 | D3 | D422 |
| Q404 | D2 | Q413 | D3                | Q422 | D5                | Q433 | C2 | D406 | D2 | D414 | D3 | D423 |
| Q405 | D3 | Q414 | D3                | Q424 | E5                | Q434 | C2 | D407 | D3 | D415 | D4 | D424 |
| Q406 | D2 | Q415 | D4                | Q426 | C5                | Q435 | C3 | D408 | C2 | D416 | D4 | D425 |
| Q407 | D3 | Q416 | D4                | Q427 | D5                | Q436 | C3 | D409 | C2 | D417 | D4 | D426 |
|      |    | Q417 | D4                | Q428 | D6                | Q437 | C4 | D410 | C3 | D418 | D4 | D427 |
|      |    | Q418 | D5 (WP-1400 only) | Q429 | D5                | D401 | E2 | D402 | C2 | D419 | D3 | D428 |

POWER AMP BOARD WP-1200/1400



|      | B                | C                | E                |
|------|------------------|------------------|------------------|
| Q401 | 0                | -13.4            | 0.6              |
| 402  | 13.5             | 0.5              | 13.5             |
| 403  | -13.4            | -0.5             | -14.0            |
| 404  | 0                | 68.3<br>(83.3)   | -0.5             |
| 405  | -0.5             | 69.1<br>(84.0)   | -0.5             |
| 406  | 0                | -68.3<br>(-84.0) | 0.5              |
| 407  | 0                | -69.4<br>(-83.2) | 0.5              |
| 408  | 69.9<br>(86.0)   | 2.6              | 69.3<br>(86.0)   |
| 409  | -69.0<br>(-87.0) | -2.5             | -70.9<br>(-87.0) |
| 412  | 0                | 1.1              | -1.0             |
| 413  | 0                | 1.0              | 0                |
| 414  | 0                | -0.9             | 0                |
| 415  | 1.1              | 35.0<br>(43.0)   | 0.5              |
| 416  | -1.0             | -35.0<br>(-43.0) | -0.4             |
| 417  | 0.5              | 35.0<br>(43.0)   | 0                |
| 418  | (0)              | (43.0)           | (0)              |
| 419  | 0.5              | 35.0<br>(43.0)   | 0                |
| 420  | -0.4             | -35.0<br>(-43.0) | 0                |
| 421  | (0)              | (40.0)           | (0)              |
| 422  | 0                | -34.9<br>(-43.0) | -0.4             |
| 424  | 70.4<br>(87.0)   | 35.0<br>(87.0)   | 70.5<br>(87.0)   |
| 426  | -70.0<br>(-87.0) | -35.0<br>(-43.0) | -70.5<br>(-87.0) |
| 427  | 0                | 70.3             | 0                |
| 428  | 0                | 4.0              | 4.0              |
| 429  | 0                | -70.9<br>(-87.0) | -3.9             |
| 430  | -4.5             | -3.9             | -3.9             |
| 431  | A1 0             | A2 0             | A3 0             |
| 432  | 0.6              | 0                | 0                |
| 433  | 0                | 34.0<br>(41.6)   | 0                |
| 434  | 0.6              | 0                | 0                |
| 435  | 9.9              | 0                | 10.0             |
| 436  | 0                | 9.9              | 0                |
| 437  | 0                | 9.9              | 0                |

|      | B                | C                | E                |
|------|------------------|------------------|------------------|
| Q601 | 0                | -13.3            | 0.6              |
| 602  | 13.3             | 0.5              | 13.9             |
| 603  | -13.3            | -0.5             | -14.0            |
| 604  | 0                | 67.9<br>(84.0)   | -0.5             |
| 605  | 0                | 68.6<br>(85.0)   | -0.5             |
| 606  | 0                | -68.9<br>(-83.0) | 0.5              |
| 607  | 0                | -69.0<br>(-85.0) | 0.5              |
| 608  | 69.5<br>(86.0)   | 2.5              | 69.9<br>(86.0)   |
| 609  | -69.4<br>(-87.0) | -2.5             | -70.1<br>(-87.0) |
| 612  | 0                | 1.1              | -1.0             |
| 613  | 0                | 0.9              | 0                |
| 614  | 0                | -0.9             | 0                |
| 615  | 1.1              | 35.0<br>(43.0)   | 0.4              |
| 616  | -1.0             | -35.0<br>(-43.0) | -0.4             |
| 617  | 0.4              | 35.0<br>(43.0)   | 0                |
| 618  | (0)              | (43.0)           | (0)              |
| 619  | 0.5              | 35.0<br>(43.0)   | 0                |
| 620  | -0.4             | -35.0<br>(-43.0) | 0                |
| 621  | -0.4             | (43.0)           | 0                |
| 622  | -0.4             | -35.1<br>(-43.0) | 0                |
| 624  | 70<br>(87.0)     | 35.0<br>(87.0)   | 70<br>(87.0)     |
| 626  | -70.4<br>(-87.0) | -35.0<br>(-43.0) | -70.5<br>(-87.0) |
| 627  | 0                | 70.4<br>(87.0)   | 0                |
| 628  | 4.5              | 3.9              | 3.9              |
| 629  | 0                | -70.0<br>(-87.0) | -3.9             |
| 630  | -4.5             | -3.9             | -3.9             |
| 631  | A1 0             | A2 0             | A3 0             |
| 632  | 0                | 0                | 0                |
| 633  | 0                | 34.2<br>(42.0)   | 0                |
| 634  | 0.6              | 0                | 0                |
| 635  | 10.0             | 0                | 10.0             |
| 636  | 0                | 10.0             | 0                |
| 637  | 0                | 10.0             | 0                |

\* mark parts is shown below.

| Ref  | WP-1200  | WP-1400  |
|------|----------|----------|
| C401 | 33μF 16V | 10μF 10V |
| R401 | 12K      | 3.6K     |
| R432 | 18K      | 27K      |
| R433 | 18K      | 27K      |
| R444 | 680      | 1K       |
| R446 | 680      | 1K       |
| R447 | 680      | 1K       |
| R449 | 680      | 1K       |
| R458 | -        | 1K       |
| R461 | 2.7K     | 4.3K     |
| R464 | 2.4K     | 2.2K     |
| R468 | 2.7K     | 4.3K     |
| R471 | 2.4K     | 2.2K     |
| R490 | 2.2K     | 3.9K     |
| R497 | 10K      | 18K      |
| R499 | 10K      | 18K      |
| F401 | 8A       | 10A      |
| F402 | 8A       | 10A      |
| F403 | 8A       | 10A      |
| F404 | 8A       | 10A      |
| F405 | 8A       | 10A      |
| F406 | 8A       | 10A      |
| F407 | 8A       | 10A      |
| F408 | 8A       | 10A      |

| Ref  | WP-1200  | WP-1400  |
|------|----------|----------|
| C601 | 33μF 16V | 10μF 10V |
| R601 | 12K      | 3.6K     |
| R632 | 18K      | 27K      |
| R633 | 18K      | 27K      |
| R644 | 680      | 1K       |
| R646 | 680      | 1K       |
| R647 | 680      | 1K       |
| R649 | 680      | 1K       |
| R658 | -        | 1K       |
| R661 | 2.7K     | 4.3K     |
| R664 | 2.4K     | 2.2K     |
| R668 | 2.7K     | 4.3K     |
| R671 | 2.4K     | 2.2K     |
| R690 | 2.2K     | 3.9K     |
| R697 | 10K      | 18K      |
| R699 | 10K      | 18K      |
| F601 | 8A       | 10A      |
| F602 | 8A       | 10A      |
| F603 | 8A       | 10A      |
| F604 | 8A       | 10A      |
| F605 | 8A       | 10A      |
| F606 | 8A       | 10A      |
| F607 | 8A       | 10A      |
| F608 | 8A       | 10A      |

|      | D3 | D429 | C3 | LED BOARD |
|------|----|------|----|-----------|
| D420 | D3 | D430 | C4 |           |
| D421 | D3 | D431 | B4 | D701 B7   |
| D422 | D3 | D432 | C4 | D701 B7   |
| D423 | D3 | D433 | B4 | D703 B7   |
| D424 | D3 | D434 | C4 | D704 B7   |
| D425 | D6 | D435 | C4 | D705 B7   |
| D426 | C5 |      |    |           |
| D427 | D5 |      |    |           |
| D428 | D5 |      |    |           |

## REPLACEMENT PARTS LIST

## Important Notice

- Components identified by "△" mark have special characteristics important for safety.  
When replacing any of these components, use only manufacturer's specified parts.
- Printed circuit board assembly with mark (NLA) is no longer available after production discontinuation of the complete set.

| REF.NO.              | PART NO.     | DESCRIPTION                     | REF.NO. | PART NO.     | DESCRIPTION                       |
|----------------------|--------------|---------------------------------|---------|--------------|-----------------------------------|
| <b>MISCELLANEOUS</b> |              |                                 | M25     | YWA2PA0483A4 | Insulator Sheet                   |
| TH1                  | YWPTH59FBD47 | Thermistor                      | M26     | YWA5PA0089A4 | Rack Angle B for Side for WP-1200 |
| T1 △                 | YWAPTA0110AN | Power Transformer for WP-1200/B |         | YWA5PA0088A4 | Rack Components for WP-1400       |
|                      | YWAPTA0108AN | Power Transformer for WP-1200/G | M27     | YWA7SA1437A4 | Fuse Caution Label for WP-1200    |
|                      | YWAPTA0109AN | Power Transformer for WP-1400/B |         | YWA7SB1437A4 | Fuse Caution Label for WP-1400    |
|                      | YWAPTA0107AN | Power Transformer for WP-1400/G | M29     | YWA7SA0679A4 | Fuse Label for WP-1400            |
| F801 △               | XBA2C63ET0A  | Current Fuse 6.3A for WP-1200   | M31     | YWA7SA0689A4 | Earth Label                       |
|                      | XBA2E80NS1   | Current Fuse 8A for WP-1400     |         |              |                                   |
| MO1                  | FBA08A24HDZ  | DC Motor for WP-1200            |         |              |                                   |
|                      | FBK12G24HZC  | DC Motor for WP-1400            |         |              |                                   |
| E1 △                 | YWAACA0010A4 | AC Power Cord for WP-1200/B     |         |              |                                   |
|                      |              |                                 |         |              |                                   |
|                      | YFVM030908B  | AC Power Cord for WP-1200/G     |         |              |                                   |
|                      | YWAACA0010A4 | AC Power Cord for WP-1400/B     |         |              |                                   |
|                      | YFVM030908B  | AC Power Cord for WP-1400/G     |         |              |                                   |
| M1                   | YWA5WA1243A1 | Front Panel for WP-1200         |         |              |                                   |
|                      | YWA5WA1242A1 | Front Panel for WP-1400         |         |              |                                   |
| M2                   | YWA7QA2587A4 | Front Label for WP-1200         |         |              |                                   |
|                      | YWA7QA2586A4 | Front Label for WP-1400         |         |              |                                   |
| M3                   | YWA5RA0332A3 | Power Switch Knob               |         |              |                                   |
| M4                   | YWA2EA0168A4 | Guide Plate B for WP-1200       |         |              |                                   |
|                      | YWA2EA0166A4 | Guide Plate B for WP-1400       |         |              |                                   |
| M5                   | YWA2KA0684A1 | Chassis for WP-1200             |         |              |                                   |
|                      | YWA2KA0683A1 | Chassis for WP-1400             |         |              |                                   |
| M6                   | YWFF001A     | Rubber Foot                     |         |              |                                   |
| M7                   | YWA5EA1028A2 | Motor Cover for WP-1200         |         |              |                                   |
|                      | YWA5EA1024A2 | Cover for WP-1400               |         |              |                                   |
| M8                   | YW8132       | Motor Fan Net for WP-1200       |         |              |                                   |
|                      | YW8130       | Motor Fan Net for WP-1400       |         |              |                                   |
| M9                   | YWA3BA0081A3 | Supporting Angle                |         |              |                                   |
| M10                  | YWA2EA0167A3 | Guide Plate A for WP-1200       |         |              |                                   |
|                      | YWA2EA0165A3 | Guide Plate A for WP-1400       |         |              |                                   |
| M11                  | YWA5PA0085A4 | Rear Rack Angle A for WP-1200   |         |              |                                   |
|                      | YWA5PA0084A4 | Rack Components for WP-1400     |         |              |                                   |
| M12                  | YWA7SA1447A4 | Rear Caution Label              |         |              |                                   |
| M13                  | YWA7SA1515A3 | Rear Label for WP-1200/B        |         |              |                                   |
|                      | YWA7SA1511A3 | Rear Label for WP-1200/G        |         |              |                                   |
|                      |              |                                 |         |              |                                   |
|                      | YWA7SA1514A3 | Rear Label for WP-1400/B        |         |              |                                   |
|                      | YWA7SA1510A3 | Rear Label for WP-1400/G        |         |              |                                   |
|                      | YWA7SA1417A3 | Label for WP-1400               |         |              |                                   |
| M14                  | YWSR6N4      | Cord Clamp                      |         |              |                                   |
| M22                  | YWA5EA1025A3 | Heat Sink Cover                 |         |              |                                   |
| M23                  | YWA2SA2175A4 | Mounting Angle for WP-1200      |         |              |                                   |
|                      | YWA2SA2176A4 | Mounting Angle for WP-1400      |         |              |                                   |
| M24                  | YWA5EA1064A1 | Upper Cover for WP-1200         |         |              |                                   |
|                      | YWA5EA1023A1 | Cover for WP-1400               |         |              |                                   |

| REF.NO.                       | PART NO.     | DESCRIPTION                | REF.NO.   | PART NO.     | DESCRIPTION                 |
|-------------------------------|--------------|----------------------------|-----------|--------------|-----------------------------|
| INPUT/POWER BOARD for WV-1200 |              |                            |           |              |                             |
| PCB1 (NLA)                    | YWP1200GPA1  | Printed Circuit Board Assy | C201,202  | ECQE2104KF   | Plastic 0.1 μF 200V         |
| IC201                         | YWM51957BL   | IC                         | C203,204  | LH680V103    | Electrolytic 10000 μF 80V   |
| IC251                         | YWNJM2901N   | IC                         | C205,206  | YWLP450V472  | Electrolytic 4700 μF 50V    |
| IC301,351                     | YWNJM2068DD  | IC                         | C207,208  | YWRA225S331  | Electrolytic 330 μF 25V     |
| Q201                          | 2SD1276A-QR  | Transistor                 | C209      | ECEA1EU100   | Electrolytic 10 μF 25V (SU) |
| D201                          | YWAM01       | Diode                      |           |              |                             |
| D202                          | YWFMG225     | Diode                      | C210      | ECEA1HS220   | Electrolytic 22 μF 50V      |
| D203                          | YWFMG22R     | Diode                      | C211      | ECCF2H101J   | Ceramic 100 pF 500V         |
| D204                          | YWRBV602L    | Diode                      | C212      | ECEA1HU100   | Electrolytic 10 μF 50V      |
| D206,207                      | YWMTZ15B     | Diode                      | C213      | ECEA1HS220   | Electrolytic 22 μF 50V      |
| D208                          | YWMTZ13B     | Diode                      | C241,242  | ECQV1H104JZ  | Plastic 0.1 μF 50V          |
| D209                          | YWMTZ12B     | Diode                      |           |              |                             |
| D251                          | YWMTZ15B     | Diode                      | C243      | ECEA1EN100S  | Electrolytic 10 μF 25V      |
| D252-262                      | MA165        | Diode                      | C251      | ECEA1ES221   | Electrolytic 220 μF 25V(SU) |
| R201-204                      | ER0S2CKF4702 | Metal 47K ohms 1/4W        | C252-254  | ECQV1H104JZ  | Plastic 0.1 μF 50V          |
| R205,206                      | ER0S2CKF1801 | Metal 1.8K ohms 1/4W       | C255      | ECEA1EU100   | Electrolytic 10 μF 25V (SU) |
|                               |              |                            | C256      | ECQV1H104JZ  | Plastic 0.1 μF 50V          |
| R208,209                      | ER0S2CKF4702 | Metal 47K ohms 1/4W        |           |              |                             |
| R210                          | ERDS2TJ223   | Carbon 22K ohms 1/4W       | C301,302  | YWUP05B101KN | Ceramic 100 pF              |
| R211                          | ERDS2TJ104   | Carbon 100K ohms 1/4W      | C303,304  | YWUP05S100JN | Ceramic 10 pF               |
| R212                          | ERDS2TJ103   | Carbon 10K ohms 1/4W       | C305      | YWR0A16S221  | Electrolytic 220 μF 16V     |
| R213                          | ERF52XJ390   | Wire Wound 39 ohms 5W      | C306      | ECQV1H104JZ  | Plastic 0.1 μF 50V          |
|                               |              |                            | C307      | YWRBA16T220  | Electrolytic 220 μF 16V     |
| R214                          | ERDS2TJ472   | Carbon 4.7K ohms 1/4W      |           |              |                             |
| R215                          | ERDS2TJ473   | Carbon 47K ohms 1/4W       | C308      | YWUP05S100JN | Ceramic 10 pF               |
| R216                          | ERG1SJ272    | Metal 2.7K ohms 1W         | C311,312  | ECQV1H104JZ  | Plastic 0.1 μF 50V          |
| R218                          | ERDS2FJ4R7   | Carbon 4.7K ohms 1/4W      | C351,352  | YWUP05B101KN | Ceramic 100 pF              |
| R251                          | ERDS2TJ182   | Carbon 1.8K ohms 1/4W      | C353,354  | YWUP05S100JN | Ceramic 10 pF               |
|                               |              |                            | C355      | YWR0A16S221  | Electrolytic 220 μF 16V     |
| R252                          | ER0S2CKF3302 | Metal 33K ohms 1/4W        |           |              |                             |
| R253                          | ERDS2TJ274   | Carbon 270K ohms 1/4W      | C356      | ECQV1H104JZ  | Plastic 0.1 μF 50V          |
| R254                          | ER0S2CKF1301 | Metal 1.3K ohms 1/4W       | C357      | YWUP05S100JN | Ceramic 10 pF               |
| R255                          | ERDS2TJ105   | Carbon 1M ohms 1/4W        | C358      | YWRBA16T100  | Electrolytic 10 μF 16V      |
| R256                          | ERDS2TJ334   | Carbon 330K ohms 1/4W      | C361,362  | ECQV1H104JZ  | Plastic 0.1 μF 50V          |
|                               |              |                            | SW351     | YWSBH22B09B  | Slide Switch                |
| R257                          | ER0S2CKF1502 | Metal 15K ohms 1/4W        |           |              |                             |
| R258                          | ER0S2CKF1202 | Metal 12K ohms 1/4W        | JK301,351 | HLJ052101010 | Jack                        |
| R259                          | ERDS2TJ105   | Carbon 1M ohms 1/4W        | CN201     | YWB8PVH      | 8-pin Connector             |
| R260                          | ERDS2TJ334   | Carbon 330K ohms 1/4W      | CN202     | YWB3BXHA     | 3-pin Connector             |
| R261                          | ER0S2CKF1502 | Metal 15K ohms 1/4W        | CN204     | YWB11BEH     | 11-pin Connector            |
|                               |              |                            | CN205     | YWB6PVH      | 6-pin Connector             |
| R262                          | ER0S2CKF1202 | Metal 12K ohms 1/4W        |           |              |                             |
| R263                          | ERDS2TJ105   | Carbon 1M ohms 1/4W        | CN206     | YWB9P-VH     | 9-pin Connector             |
| R264,265                      | ER0S2CKF1302 | Metal 13K ohms 1/4W        | CN301,351 | YWRAMSA331   | Connector                   |
| R267                          | ER0S2CKF1302 | Metal 13K ohms 1/4W        | E200      | YW851040     | Insulator                   |
| R268                          | ERDS2TJ621   | Carbon 620 ohms 1/4W       | M15       | YWA7DA0307A4 | Heat Sink                   |
|                               |              |                            |           |              |                             |
| R300                          | ER0S2CKF4022 | Metal 40.2K ohms 1/4W      |           |              |                             |
| R301-304                      | ER0S2CKF2002 | Metal 20K ohms 1/4W        |           |              |                             |
| R305                          | ERDS2TJ104   | Carbon 100K ohms 1/4W      |           |              |                             |
| R307                          | ER0S2CKF1002 | Metal 10K ohms 1/4W        |           |              |                             |
| R350                          | ER0S2CKF4022 | Metal 40.2K ohms 1/4W      |           |              |                             |
|                               |              |                            |           |              |                             |
| R351-354                      | ER0S2CKF2002 | Metal 20K ohms 1/4W        |           |              |                             |
| R355-357                      | ER0S2CKF1002 | Metal 10K ohms 1/4W        |           |              |                             |
| R358                          | ERDS2TJ104   | Carbon 100K ohms 1/4W      |           |              |                             |
| R359                          | ER0S2CKF1002 | Metal 10K ohms 1/4W        |           |              |                             |
| VR301,351                     | EWHGFA515A53 | Variable Resistor 5K ohms  |           |              |                             |

| REF.NO.                       | PART NO.     | DESCRIPTION                |                 | REF.NO.   | PART NO.     | DESCRIPTION                  |                     |
|-------------------------------|--------------|----------------------------|-----------------|-----------|--------------|------------------------------|---------------------|
| INPUT/POWER BOARD for WV-1400 |              |                            |                 | C201,202  | ECQE2104KF   | Plastic                      | 0.1 $\mu$ F         |
|                               |              |                            |                 | C203,204  | YWLH6100V153 | Electrolytic                 | 1500 $\mu$ F        |
|                               |              |                            |                 | C205,206  | YWLP450V472  | Electrolytic                 | 4700 $\mu$ F 50V    |
|                               |              |                            |                 | C207,208  | YWRA225S471  | Electrolytic                 | 470 $\mu$ F 25V     |
|                               |              |                            |                 | C209      | ECEA1EU100   | Electrolytic                 | 10 $\mu$ F 25V (SU) |
|                               |              |                            |                 | C210      | ECEA1HS220   | Electrolytic                 | 22 $\mu$ F 50V      |
|                               |              |                            |                 | C211      | ECCF2H101J   | Ceramic                      | 100 pF              |
|                               |              |                            |                 | C212      | ECEA1HU100   | Electrolytic                 | 10 $\mu$ F 50V      |
|                               |              |                            |                 | C213      | ECEA1HS220   | Electrolytic                 | 22 $\mu$ F 50V      |
|                               |              |                            |                 | C241,242  | ECQV1H104JZ  | Plastic                      | 0.1 $\mu$ F 50V     |
|                               |              |                            |                 | C243      | ECEA1EN100S  | Electrolytic                 | 10 $\mu$ F 25V      |
|                               |              |                            |                 | C251      | ECEA1ES221   | Electrolytic                 | 220 $\mu$ F 25V(SU) |
|                               |              |                            |                 | C252-254  | ECQV1H104JZ  | Plastic                      | 0.1 $\mu$ F 50V     |
|                               |              |                            |                 | C255      | ECEA1EU100   | Electrolytic                 | 10 $\mu$ F 25V (SU) |
|                               |              |                            |                 | C256      | ECQV1H104JZ  | Plastic                      | 0.1 $\mu$ F 50V     |
|                               |              |                            |                 | C301,302  | YWUP05B101KN | Ceramic                      | 100 pF              |
|                               |              |                            |                 | C303,304  | YWUP05S100JN | Ceramic                      | 10 pF               |
|                               |              |                            |                 | C305      | YWR0A16S221  | Electrolytic                 | 220 $\mu$ F 16V     |
|                               |              |                            |                 | C306      | ECQV1H104JZ  | Plastic                      | 0.1 $\mu$ F 50V     |
|                               |              |                            |                 | C307      | YWRBA16T220  | Electrolytic                 | 22 $\mu$ F 16V      |
|                               |              |                            |                 | C308      | YWUP05S100JN | Ceramic                      | 10 pF               |
|                               |              |                            |                 | C311,312  | ECQV1H104JZ  | Plastic                      | 0.1 $\mu$ F 50V     |
|                               |              |                            |                 | C351,352  | YWUP05B101KN | Ceramic                      | 100 pF              |
|                               |              |                            |                 | C353,354  | YWUP05S100JN | Ceramic                      | 10 pF               |
|                               |              |                            |                 | C355      | YWR0A16S221  | Electrolytic                 | 220 $\mu$ F 16V     |
|                               |              |                            |                 | C356      | ECQV1H104JZ  | Plastic                      | 0.1 $\mu$ F 50V     |
|                               |              |                            |                 | C357      | YWUP05S100JN | Ceramic                      | 10 pF               |
|                               |              |                            |                 | C358      | YWRBA16T100  | Electrolytic                 | 10 $\mu$ F 16V      |
|                               |              |                            |                 | C361,362  | ECQV1H104JZ  | Plastic                      | 0.1 $\mu$ F 50V     |
|                               |              |                            |                 | SW351     | YWSBH22B09B  | Slide Switch                 |                     |
|                               |              |                            |                 | JK301,351 | HLJ052101010 | Jack                         |                     |
|                               |              |                            |                 | CN201     | YWB8PVH      | 8-pin Connector              |                     |
|                               |              |                            |                 | CN202     | YWB3BXHA     | 3-pin Connector              |                     |
|                               |              |                            |                 | CN204     | YWB11BEH     | 11-pin Connector             |                     |
|                               |              |                            |                 | CN205     | YWB6PVH      | 6-pin Connector              |                     |
|                               |              |                            |                 | CN206     | YWB9P-VH     | 9-pin Connector              |                     |
|                               |              |                            |                 | CN301,351 | YWRAMSA331   | Connector                    |                     |
|                               |              |                            |                 | E200      | YW851040     | Insulator                    |                     |
|                               |              |                            |                 | M15       | YWA7DA0295A4 | Heat Sink                    |                     |
|                               |              |                            |                 | M18       | YWA2SA1909A3 | Mounting Angle for capacitor |                     |
| PCB1 (NLA)                    | YWP1400GPA1  | Printed Circuit Board Assy |                 |           |              |                              |                     |
| IC201                         | YWM51957BL   | IC                         |                 |           |              |                              |                     |
| IC251                         | YWNJM2901N   | IC                         |                 |           |              |                              |                     |
| IC301,351                     | YWNJM2068DD  | IC                         |                 |           |              |                              |                     |
| Q201                          | 2SD1276A-QR  | Transistor                 |                 |           |              |                              |                     |
| D201                          | YWAM01       | Diode                      |                 |           |              |                              |                     |
| D202                          | YWFMG33S     | Diode                      |                 |           |              |                              |                     |
| D203                          | YWFMG33R     | Diode                      |                 |           |              |                              |                     |
| D204                          | YWRBV602L    | Diode                      |                 |           |              |                              |                     |
| D206,207                      | YWMTZ15B     | Diode                      |                 |           |              |                              |                     |
| D208                          | YWMTZ11B     | Diode                      |                 |           |              |                              |                     |
| D209,251                      | YWMTZ15B     | Diode                      |                 |           |              |                              |                     |
| D252-262                      | MA165        | Diode                      |                 |           |              |                              |                     |
| R201-204                      | EROS2CKF4702 | Metal                      | 47K ohms 1/4W   |           |              |                              |                     |
| R205,206                      | EROS2CKF2701 | Metal                      | 2.7K ohms 1/4W  |           |              |                              |                     |
| R208,209                      | EROS2CKF4702 | Metal                      | 47K ohms 1/4W   |           |              |                              |                     |
| R210                          | ERDS2TJ822   | Carbon                     | 8.2K ohms 1/4W  |           |              |                              |                     |
| R211                          | ERDS2TJ104   | Carbon                     | 100K ohms 1/4W  |           |              |                              |                     |
| R212                          | ERDS2TJ103   | Carbon                     | 10K ohms 1/4W   |           |              |                              |                     |
| R213                          | ERF5ZXJ220   | Wire Wound                 | 22 ohms 5W      |           |              |                              |                     |
| R214                          | ERDS2TJ472   | Carbon                     | 4.7K ohms 1/4W  |           |              |                              |                     |
| R215                          | ERDS2TJ473   | Carbon                     | 47K ohms 1/4W   |           |              |                              |                     |
| R216                          | ERG1S392     | Metal                      | 3.9K ohms 1W    |           |              |                              |                     |
| R217                          | ERDS2FJ2R2   | Carbon                     | 2.2K ohms 1/4W  |           |              |                              |                     |
| R251                          | ERDS2TJ272   | Carbon                     | 2.7K ohms 1/4W  |           |              |                              |                     |
| R252                          | EROS2CKF3302 | Metal                      | 33K ohms 1/4W   |           |              |                              |                     |
| R253                          | ERDS2TJ274   | Carbon                     | 270K ohms 1/4W  |           |              |                              |                     |
| R254                          | EROS2CKF1301 | Metal                      | 1.3K ohms 1/4W  |           |              |                              |                     |
| R255                          | ERDS2TJ105   | Carbon                     | 1M ohms 1/4W    |           |              |                              |                     |
| R256                          | ERDS2TJ334   | Carbon                     | 330K ohms 1/4W  |           |              |                              |                     |
| R257                          | EROS2CKF1502 | Metal                      | 15K ohms 1/4W   |           |              |                              |                     |
| R258                          | EROS2CKF1202 | Metal                      | 12K ohms 1/4W   |           |              |                              |                     |
| R259                          | ERDS2TJ105   | Carbon                     | 1M ohms 1/4W    |           |              |                              |                     |
| R260                          | ERDS2TJ334   | Carbon                     | 330K ohms 1/4W  |           |              |                              |                     |
| R261                          | EROS2CKF1502 | Metal                      | 15K ohms 1/4W   |           |              |                              |                     |
| R262                          | EROS2CKF1202 | Metal                      | 12K ohms 1/4W   |           |              |                              |                     |
| R263                          | ERDS2TJ105   | Carbon                     | 1M ohms 1/4W    |           |              |                              |                     |
| R264,265                      | EROS2CKF1302 | Metal                      | 13K ohms 1/4W   |           |              |                              |                     |
| R267                          | EROS2CKF1302 | Metal                      | 13K ohms 1/4W   |           |              |                              |                     |
| R268                          | ERDS2TJ621   | Carbon                     | 620 ohms 1/4W   |           |              |                              |                     |
| R300                          | EROS2CKF4022 | Metal                      | 40.2K ohms 1/4W |           |              |                              |                     |
| R301-304                      | EROS2CKF2002 | Metal                      | 20K ohms 1/4W   |           |              |                              |                     |
| R305                          | ERDS2TJ104   | Carbon                     | 100K ohms 1/4W  |           |              |                              |                     |
| R307                          | EROS2CKF1002 | Metal                      | 10K ohms 1/4W   |           |              |                              |                     |
| R350                          | EROS2CKF4022 | Metal                      | 40.2K ohms 1/4W |           |              |                              |                     |
| R351-354                      | EROS2CKF2002 | Metal                      | 20K ohms 1/4W   |           |              |                              |                     |
| R355-357                      | EROS2CKF1002 | Metal                      | 10K ohms 1/4W   |           |              |                              |                     |
| R358                          | ERDS2TJ104   | Carbon                     | 100K ohms 1/4W  |           |              |                              |                     |
| R359                          | EROS2CKF1002 | Metal                      | 10K ohms 1/4W   |           |              |                              |                     |
| VR301,351                     | EWHGFAS15A53 | Variable Resistor 5K ohms  |                 |           |              |                              |                     |

| REF.NO.                                             | PART NO.                                                                        | DESCRIPTION                                                             | REF.NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PART NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FUSE BOARD</b>                                   |                                                                                 |                                                                         | <b>POWER AMP BOARD for WP-1200</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| PCB2<br>C801,802<br>E800<br>E801                    | YWAPRC2157A1<br>ECKDNS222ME<br>YWH00162<br>YW851040                             | Printed Board<br>Ceramic 2200 pF (NS)<br>Fuse Holder<br>Insulator Cover | PCB6 (NLA)<br>Q401<br>Q402<br>Q403<br>Q404,405<br><br>Q406,407<br>Q408<br>Q409<br>Q412<br>Q413<br><br>Q414<br>Q415<br>Q416<br>Q417,419<br>Q420,422<br><br>Q424<br>Q426<br>Q427,428<br>Q429,430<br>Q431<br><br>Q432,433<br>Q434<br>Q435<br>Q436,437<br>Q601<br><br>Q602<br>Q603<br>Q604,605<br>Q606,607<br>Q608<br><br>Q609<br>Q612<br>Q613<br>Q614<br>Q615<br><br>Q616<br>Q617,619<br>Q620,622<br>Q624<br>Q626<br><br>Q627,628<br>Q629,630<br>Q631<br>Q632,633<br>Q634<br><br>Q635<br>Q636,637<br>D401,402<br>D403-406<br>D407 | YWP1200PP01<br>2SA1123<br>2SA1127-ST<br>2SC2634-ST<br>2SC1980-ST<br><br>2SA921-ST<br>2SA1381<br>2SC3503-EF<br>2SC3116<br>2SC2634-ST<br><br>2SA1127-ST<br>2SC2336B-PQ<br>2SA1006B-PQ<br>2SC32630YS<br>2SA12940YS<br><br>2SB1383<br>2SD2083<br>2SC3116<br>2SA1248<br>BS08A<br><br>2SC2631-RS<br>2SC2634-ST<br>2SA1127-ST<br>2SC2634-ST<br>2SA1123<br><br>2SA1127-ST<br>2SC2634-ST<br>2SC1980-ST<br>2SA921-ST<br>2SA1381<br><br>2SC3503-EF<br>2SC3116<br>2SC2634-ST<br>2SA1127-ST<br>2SC2336B-PQ<br><br>2SA1006B-PQ<br>2SC32630YS<br>2SA12940YS<br>2SB1383<br>2SD2083<br><br>2SC3116<br>2SA1248<br>BS08A<br>2SC2631-RS<br>2SC2634-ST<br><br>2SA1127-ST<br>2SC2634-ST<br>YWHSEB2TD<br>MA165<br>MA188 | Printed Circuit Board Assy<br>Transistor<br>Transistor<br>Transistor<br>Transistor<br><br>Transistor<br>Transistor<br>Transistor<br>Transistor<br>Transistor<br><br>Transistor<br>Transistor<br>Transistor<br>Transistor<br>Transistor<br><br>Transistor<br>Transistor<br>Transistor<br>Transistor<br>Transistor<br><br>Transistor<br>Transistor<br>Transistor<br>Transistor<br>Transistor<br><br>Transistor<br>Transistor<br>Transistor<br>Transistor<br>Transistor<br><br>Transistor<br>Transistor<br>Transistor<br>Transistor<br>Transistor<br><br>Transistor<br>Transistor<br>Diode<br>Diode<br>Diode |
| <b>POWER SWITCH BOARD</b>                           |                                                                                 |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| PCB3<br>C851,852<br>SW801                           | YWAPRD2157A1<br>ECQU2A333MV<br>ES870927V                                        | Printed Board<br>Plastic 0.033 $\mu$ F<br>Push Switch                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>LED BOARD</b>                                    |                                                                                 |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| PCB4<br>D801<br>D802,803<br>D804,805<br>CN802<br>E1 | YWAPRE2157A1<br>YWBR7351K<br>YWAY7351K<br>YWBR7351K<br>YWS11BEH<br>YWA3CA0246A3 | Printed Board<br>LED<br>LED<br>LED<br>11-pin Connector<br>LED Holder    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>OUTPUT TERMINAL BOARD</b>                        |                                                                                 |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| PCB5<br>CN251<br>E201,251                           | YWAPRF2157A1<br>YWB6PSVH<br>YWTN061                                             | Printed Board<br>Connector<br>Terminal                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| REF.NO.  | PART NO.     | DESCRIPTION           | REF.NO.  | PART NO.     | DESCRIPTION           |
|----------|--------------|-----------------------|----------|--------------|-----------------------|
| D408,409 | MA165        | Diode                 | R451     | ERF5AKR27    | Metal 0.27 ohms 1/4W  |
| D410     | MA188        | Diode                 | R453,454 | ERF5AKR27    | Metal 0.27 ohms 1/4W  |
| D411-414 | MA165        | Diode                 | R456     | ERF5AKR27    | Metal 0.27 ohms 1/4W  |
| D415,416 | MA188        | Diode                 | R457     | ERDS2TJ621   | Carbon 620 ohms 1/4W  |
| D417-420 | MA165        | Diode                 | R458,460 | ERDS2TJ102   | Carbon 1K ohms 1/4W   |
| D421     | MA188        | Diode                 | R461     | ERDS2TJ272   | Carbon 2.7K ohms 1/4W |
| D422,423 | MA165        | Diode                 | R462,463 | ERDS2TJ472   | Carbon 4.7K ohms 1/4W |
| D424     | MA188        | Diode                 | R464     | ERDS2TJ242   | Carbon 2.4K ohms 1/4W |
| D425,426 | YWFMLG125    | Diode                 | R465     | ERDS2TJ511   | Metal 510 ohms 1/4W   |
| D427,428 | MA188        | Diode                 | R466     | ERDS2TJ103   | Carbon 10K ohms 1/4W  |
| D429     | YWHSEB2TD    | Diode                 | R467     | ERDS2TJ222   | Carbon 2.2K ohms 1/4W |
| D430-433 | MA188        | Diode                 | R468     | ERDS2TJ272   | Carbon 2.7K ohms 1/4W |
| D434,435 | YWHSEB2TD    | Diode                 | R469,470 | ERDS2TJ472   | Carbon 4.7K ohms 1/4W |
| D601,602 | YWHSEB2TD    | Diode                 | R471     | ERDS2TJ242   | Carbon 2.4K ohms 1/4W |
| D603-606 | MA165        | Diode                 | R472     | ERDS2TJ511   | Metal 510 ohms 1/4W   |
| D607     | MA188        | Diode                 | R473     | ERDS2TJ103   | Carbon 10K ohms 1/4W  |
| D608,609 | MA165        | Diode                 | R474     | ERDS2TJ222   | Carbon 2.2K ohms 1/4W |
| D610     | MA188        | Diode                 | R475     | ERX3SJ6R8P   | Metal 6.8 ohms 1/4W   |
| D611-614 | MA165        | Diode                 | R476,477 | ERX3SJ2R4    | Metal 2.4 ohms 1/4W   |
| D615,616 | MA188        | Diode                 | R478     | ERDS2TJ223   | Carbon 22K ohms 1/4W  |
| D617-620 | MA165        | Diode                 | R479     | ERDS2TJ103   | Carbon 10K ohms 1/4W  |
| D621     | MA188        | Diode                 | R480     | ERDS2TJ222   | Carbon 2.2K ohms 1/4W |
| D622,623 | MA165        | Diode                 | R481     | ERDS2TJ104   | Carbon 100K ohms 1/4W |
| D624     | MA188        | Diode                 | R482     | ERDS2TJ223   | Carbon 22K ohms 1/4W  |
| D625,626 | YWFMLG125    | Diode                 | R483     | ERDS2TJ392   | Carbon 3.9K ohms 1/4W |
| D627,628 | MA188        | Diode                 | R484     | ERDS2TJ223   | Carbon 22K ohms 1/4W  |
| D629     | YWHSEB2TD    | Diode                 | R485     | ERDS2TJ104   | Carbon 100K ohms 1/4W |
| D630-633 | MA188        | Diode                 | R486     | ERDS2TJ223   | Carbon 22K ohms 1/4W  |
| D634,635 | YWHSEB2TD    | Diode                 | R487     | ERDS2TJ101   | Carbon 100 ohms 1/4W  |
| SCR401 ▲ | YWTM1661I    | Thyristor             | R488     | ERDS2TJ104   | Carbon 100K ohms 1/4W |
| SCR601 ▲ | YWTM1661I    | Thyristor             | R489     | ERDS2TJ223   | Carbon 22K ohms 1/4W  |
| TH401    | YWTH487BF471 | Thermistor            | R490,491 | ERDS2TJ222   | Carbon 2.2K ohms 1/4W |
| TH402    | ERTD2WIL154S | Thermistor            | R492     | ERDS2TJ683   | Carbon 68K ohms 1/4W  |
| TH601    | YWTH487BF471 | Thermistor            | R493     | ERDS2TJ752   | Carbon 7.5K ohms 1/4W |
| TH602    | ERTD2WIL154S | Thermistor            | R496     | EROS2CKF6800 | Metal 680 ohms 1/4W   |
| R401     | EROS2CKF1202 | Metal 12K ohms 1/4W   | R497     | EROS2CKF1002 | Metal 10K ohms 1/4W   |
| R403     | ERDS2TJ104   | Carbon 100K ohms 1/4W | R498     | EROS2CKF1802 | Metal 18K ohms 1/4W   |
| R404     | ERDS2TJ511   | Metal 510 ohms 1/4W   | R499     | EROS2CKF1002 | Metal 10K ohms 1/4W   |
| R405     | ERDS2TJ183   | Metal 18K ohms 1/4W   | R601     | EROS2CKF1202 | Metal 12K ohms 1/4W   |
| R406     | ERDS2TJ511   | Metal 510 ohms 1/4W   | R603     | ERDS2TJ104   | Carbon 100K ohms 1/4W |
| R407,408 | EROS2CKF2700 | Metal 270 ohms 1/4W   | R604     | ERDS2TJ511   | Metal 510 ohms 1/4W   |
| R409-412 | EROS2CKF2201 | Metal 2.2K ohms 1/4W  | R605     | ERDS2TJ183   | Metal 18K ohms 1/4W   |
| R413-416 | EROS2CKF36R0 | Metal 22 ohms 1/4W    | R606     | ERDS2TJ511   | Metal 510 ohms 1/4W   |
| R417     | EROS2CKF2201 | Metal 2.2K ohms 1/4W  | R607,608 | EROS2CKF2700 | Metal 270 ohms 1/4W   |
| R418,421 | ERDS2TJ512   | Carbon 5.1K ohms 1/4W | R609-612 | EROS2CKF2201 | Metal 2.2K ohms 1/4W  |
| R422,423 | EROS2CKF33R0 | Metal 22 ohms 1/4W    | R613-616 | EROS2CKF36R0 | Metal 22 ohms 1/4W    |
| R424     | EROS2CKF4700 | Metal 470 ohms 1/4W   | R617     | EROS2CKF2201 | Metal 2.2K ohms 1/4W  |
| R425,426 | EROS2CKF2402 | Metal 24K ohms 1/4W   | R618,621 | ERDS2TJ512   | Carbon 5.1K ohms 1/4W |
| R430,431 | EROS2CKF22R0 | Metal 22 ohms 1/4W    | R622,623 | EROS2CKF33R0 | Metal 22 ohms 1/4W    |
| R432,433 | ERDS2TJ183   | Metal 18K ohms 1/4W   | R624     | EROS2CKF4700 | Metal 470 ohms 1/4W   |
| R438     | ERDS2FJ2R2   | Carbon 2.2 ohms 1/4W  | R625,626 | EROS2CKF2402 | Metal 24K ohms 1/4W   |
| R440,441 | ERDS2FJ2R2   | Carbon 2.2 ohms 1/4W  | R630,631 | EROS2CKF22R0 | Metal 22 ohms 1/4W    |
| R443     | ERDS2FJ2R2   | Carbon 2.2 ohms 1/4W  | R632,633 | ERDS2TJ183   | Metal 18K ohms 1/4W   |
| R444,446 | ERDS2TJ681   | Carbon 680 ohms 1/4W  | R638,640 | ERDS2FJ2R2   | Carbon 2.2 ohms 1/4W  |
| R447,449 | ERDS2TJ681   | Carbon 680 ohms 1/4W  | R641,643 | ERDS2FJ2R2   | Carbon 2.2 ohms 1/4W  |
| R450     | EROS2CKF33R0 | Metal 22 ohms 1/4W    | R644,646 | ERDS2TJ681   | Carbon 680 ohms 1/4W  |

| REF.NO.   | PART NO.     | DESCRIPTION       |                | REF.NO.   | PART NO.     | DESCRIPTION      |                 |
|-----------|--------------|-------------------|----------------|-----------|--------------|------------------|-----------------|
| R647,649  | ERDS2TJ681   | Carbon            | 680 ohms 1/4W  | C416      | ECQE1104KF   | Plastic          | 0.1 μF 100V     |
| R650      | EROS2CKF33R0 | Metal             | 22 ohms 1/4W   | C417,418  | ECCF2H271J   | Ceramic          | 270 pF 500V     |
| R651,653  | ERF5AKR27    | Metal             | 0.27 ohms 5W   | C419,420  | ECQB1H222JZ  | Plastic          | 2200 pF 50V     |
| R654,656  | ERF5AKR27    | Metal             | 0.27 ohms 5W   | C421      | ECEA1HU100   | Electrolytic     | 10 μF 50V       |
| R657      | ERDS2TJ621   | Carbon            | 620 ohms 1/4W  | C422      | ECEA2AU100   | Electrolytic     | 10 μF 100V      |
| R658,660  | ERDS2TJ102   | Carbon            | 1K ohms 1/4W   | C423      | ECEA1HU100   | Electrolytic     | 10 μF 50V       |
| R661      | ERDS2TJ272   | Carbon            | 2.7K ohms 1/4W | C424      | ECEA2AU100   | Electrolytic     | 10 μF 100V      |
| R662,663  | ERDS2TJ472   | Carbon            | 4.7K ohms 1/4W | C425      | ECQE2333KF   | Plastic          | 0.033 μF 200V   |
| R664      | ERDS2TJ242   | Carbon            | 2.4K ohms 1/4W | C426      | ECEA0JN101S  | Electrolytic     | 100 μF 6.3V     |
| R665      | ERDS2TJ511   | Metal             | 510 ohms 1/4W  | C427      | ECEA1EU101   | Electrolytic     | 100 μF 25V (SU) |
| R666      | ERDS2TJ103   | Carbon            | 10K ohms 1/4W  | C428      | ECEA0JN101S  | Electrolytic     | 100 μF 6.3V     |
| R667      | ERDS2TJ222   | Carbon            | 2.2K ohms 1/4W | C430,431  | ECCF2H271J   | Ceramic          | 270 pF 500V     |
| R668      | ERDS2TJ272   | Carbon            | 2.7K ohms 1/4W | C434,435  | ECEA2AU100   | Electrolytic     | 10 μF 100V      |
| R669,670  | ERDS2TJ472   | Carbon            | 4.7K ohms 1/4W | C436      | ECQV1H104JZ  | Plastic          | 0.1 μF 50V      |
| R671      | ERDS2TJ242   | Carbon            | 2.4K ohms 1/4W | C601      | YWRBA16S330  | Electrolytic     | 33 μF 16V       |
| R672      | ERDS2TJ511   | Metal             | 510 ohms 1/4W  | C602      | ECCF1H470JC  | Ceramic          | 47 pF 50V       |
| R673      | ERDS2TJ103   | Carbon            | 10K ohms 1/4W  | C603,604  | YWRA22S5471  | Electrolytic     | 470 μF 25V      |
| R674      | ERDS2TJ222   | Carbon            | 2.2K ohms 1/4W | C607      | YWRBA10S221  | Electrolytic     | 220 μF 10V      |
| R675      | ERX3SJ6R8P   | Metal             | 6.8 ohms 3W    | C608      | ECCF2H180J   | Ceramic          | 18 pF 500V      |
| R676,677  | ERX3SJ2R4    | Metal             | 2.4 ohms 3W    | C611      | YWR0A10T101  | Electrolytic     | 100 μF 10V      |
| R678      | ERDS2TJ223   | Carbon            | 22K ohms 1/4W  | C612      | ECQV1H104JZ  | Plastic          | 0.1 μF 50V      |
| R679      | ERDS2TJ103   | Carbon            | 10K ohms 1/4W  | C613      | ECEA2AU100   | Electrolytic     | 10 μF 100V      |
| R680      | ERDS2TJ222   | Carbon            | 2.2K ohms 1/4W | C614      | ECQE1104KF   | Plastic          | 0.1 μF 100V     |
| R681      | ERDS2TJ104   | Carbon            | 100K ohms 1/4W | C615      | ECEA2AU100   | Electrolytic     | 10 μF 100V      |
| R682      | ERDS2TJ223   | Carbon            | 22K ohms 1/4W  | C616      | ECQE1104KF   | Plastic          | 0.1 μF 100V     |
| R683      | ERDS2TJ392   | Carbon            | 3.9K ohms 1/4W | C617,618  | ECCF2H271J   | Ceramic          | 270 pF 500V     |
| R684      | ERDS2TJ223   | Carbon            | 22K ohms 1/4W  | C619,620  | ECQB1H222JZ  | Plastic          | 2200 pF 50V     |
| R685      | ERDS2TJ104   | Carbon            | 100K ohms 1/4W | C621      | ECEA1HU100   | Electrolytic     | 10 μF 50V       |
| R686      | ERDS2TJ223   | Carbon            | 22K ohms 1/4W  | C622      | ECEA2AU100   | Electrolytic     | 10 μF 100V      |
| R687      | ERDS2TJ101   | Carbon            | 100 ohms 1/4W  | C623      | ECEA1HU100   | Electrolytic     | 10 μF 50V       |
| R688      | ERDS2TJ104   | Carbon            | 100K ohms 1/4W | C624      | ECEA2AU100   | Electrolytic     | 10 μF 100V      |
| R689      | ERDS2TJ223   | Carbon            | 22K ohms 1/4W  | C625      | ECQE2333KF   | Plastic          | 0.033 μF 100V   |
| R690,691  | ERDS2TJ222   | Carbon            | 2.2K ohms 1/4W | C626      | ECEA0JN101S  | Electrolytic     | 100 μF 6.3V     |
| R692      | ERDS2TJ683   | Carbon            | 68K ohms 1/4W  | C627      | ECEA1EU101   | Electrolytic     | 100 μF 25V (SU) |
| R693      | ERDS2TJ752   | Carbon            | 7.5K ohms 1/4W | C628      | ECEA0JN101S  | Electrolytic     | 100 μF 6.3V     |
| R696      | EROS2CKF6800 | Metal             | 680 ohms 1/4W  | C630,631  | ECCF2H271J   | Ceramic          | 270 pF 500V     |
| R697      | EROS2CKF1002 | Metal             | 10K ohms 1/4W  | C634,635  | ECEA2AU100   | Electrolytic     | 10 μF 100V      |
| R698      | EROS2CKF1802 | Metal             | 18K ohms 1/4W  | C636      | ECQV1H104JZ  | Plastic          | 0.1 μF 50V      |
| R699      | EROS2CKF1002 | Metal             | 10K ohms 1/4W  | L401,601  | YWALCA0045A4 | Coil             | 1.2 μH          |
| VR401,601 | EVND4AA00B32 | Variable Resistor | 300 ohms       | F1-8      | YWULTSC8AN1  | Current Fuse     | 8A              |
| C401      | YWRBA16S330  | Electrolytic      | 33 μF 16V      | CN401     | YWB11BEH     | 11-pin Connector |                 |
| C402      | ECCF1H470JC  | Ceramic           | 47 pF 50V      | CN402     | YWB9P-VH     | 9-pin Connector  |                 |
| C403,404  | YWRA22S5471  | Electrolytic      | 470 μF 25V     | CN403     | YWB11BEH     | 11-pin Connector |                 |
| C407      | YWRBA10S221  | Electrolytic      | 220 μF 10V     | CN404,604 | YWB3BEH      | 3-pin Connector  |                 |
| C408      | ECCF2H180J   | Ceramic           | 18 pF 500V     | E400      | YWH00162     | Fuse Holder      |                 |
| C411      | YWR0A10T101  | Electrolytic      | 100 μF 10V     | M18       | YWA7DA0309A2 | Heat Sink        |                 |
| C412      | ECQV1H104JZ  | Plastic           | 0.1 μF 50V     | M19       | YWA2PD0474A3 | Insulator        |                 |
| C413      | ECEA2AU100   | Electrolytic      | 10 μF 100V     | M20       | YWA2PC0474A3 | Insulator        |                 |
| C414      | ECQE1104KF   | Plastic           | 0.1 μF 100V    | M21       | YWA2SA1910A3 | Mounting Angle   |                 |
| C415      | ECEA2AU100   | Electrolytic      | 10 μF 100V     | M28       | YWA2NA0361A4 | Spacer           |                 |

| REF.NO.                            | PART NO.    | DESCRIPTION                | REF.NO.         | PART NO.     | DESCRIPTION           |
|------------------------------------|-------------|----------------------------|-----------------|--------------|-----------------------|
| <b>POWER AMP BOARD for WP-1400</b> |             |                            |                 |              |                       |
| PCB6 (NLA)                         | YWP1400PP01 | Printed Circuit Board Assy | D415,416        | MA188        | Diode                 |
| Q401                               | 2SA1123     | Transistor                 | D417-420        | MA165        | Diode                 |
| Q402                               | 2SA1127-ST  | Transistor                 | D421            | MA188        | Diode                 |
| Q403                               | 2SC2634-ST  | Transistor                 | D422,423        | MA165        | Diode                 |
| Q404,405                           | 2SC1980-ST  | Transistor                 | D424            | MA188        | Diode                 |
| Q406,407                           | 2SA921-ST   | Transistor                 | D425,426        | YWFMLG22S    | Diode                 |
| Q408                               | 2SA1381     | Transistor                 | D427,428        | MA188        | Diode                 |
| Q409                               | 2SC3503-EF  | Transistor                 | D429            | YWHSEB2TD    | Diode                 |
| Q412                               | 2SC3116     | Transistor                 | D430-433        | MA188        | Diode                 |
| Q413                               | 2SC2634-ST  | Transistor                 | D434            | YWHSEB2TD    | Diode                 |
| Q414                               | 2SA1127-ST  | Transistor                 | D435            | YWHZS27EB2   | Diode                 |
| Q415                               | 2SC2336B-PQ | Transistor                 | D601,602        | YWHSEB2TD    | Diode                 |
| Q416                               | 2SA1006B-PQ | Transistor                 | D603-606        | MA165        | Diode                 |
| Q417-419                           | 2SC32630YS  | Transistor                 | D607            | MA188        | Diode                 |
| Q420-422                           | 2SA12940YS  | Transistor                 | D608,609        | MA165        | Diode                 |
| Q424                               | 2SB1383     | Transistor                 | D610            | MA188        | Diode                 |
| Q426                               | 2SD2083     | Transistor                 | D611-614        | MA165        | Diode                 |
| Q427,428                           | 2SC3116     | Transistor                 | D615,616        | MA188        | Diode                 |
| Q429,430                           | 2SA1248     | Transistor                 | D617-620        | MA165        | Diode                 |
| Q431                               | BS08A       | Transistor                 | D621            | MA188        | Diode                 |
| Q432,433                           | 2SC2631-RS  | Transistor                 | D622,623        | MA165        | Diode                 |
| Q434                               | 2SC2634-ST  | Transistor                 | D624            | MA188        | Diode                 |
| Q435                               | 2SA1127-ST  | Transistor                 | D625,626        | YWFMLG22S    | Diode                 |
| Q436,437                           | 2SC2634-ST  | Transistor                 | D627,628        | MA188        | Diode                 |
| Q601                               | 2SA1123     | Transistor                 | D629            | YWHSEB2TD    | Diode                 |
| Q602                               | 2SA1127-ST  | Transistor                 | D630-633        | MA188        | Diode                 |
| Q603                               | 2SC2634-ST  | Transistor                 | D634            | YWHSEB2TD    | Diode                 |
| Q604,605                           | 2SC1980-ST  | Transistor                 | D635            | YWHZS27EB2   | Diode                 |
| Q606,607                           | 2SA921-ST   | Transistor                 | SCR401 $\Delta$ | YWTM1661I    | Thyristor             |
| Q608                               | 2SA1381     | Transistor                 | SCR601 $\Delta$ | YWTM1661I    | Thyristor             |
| Q609                               | 2SC3503-EF  | Transistor                 | TH401           | YWTH487BF471 | Thermistor            |
| Q612                               | 2SC3116     | Transistor                 | TH402           | ERTD2WIL154S | Thermistor            |
| Q613                               | 2SC2634-ST  | Transistor                 | TH601           | YWTH487BF471 | Thermistor            |
| Q614                               | 2SA1127-ST  | Transistor                 | TH602           | ERTD2WIL154S | Thermistor            |
| Q615                               | 2SC2336B-PQ | Transistor                 | R401            | ER0S2CKF3601 | Metal 3.6K ohms 1/4W  |
| Q616                               | 2SA1006B-PQ | Transistor                 | R403            | ERDS2TJ104   | Carbon 100K ohms 1/4W |
| Q617-619                           | 2SC32630YS  | Transistor                 | R404            | ERDS2TJ511   | Metal 510 ohms 1/4W   |
| Q620-622                           | 2SA12940YS  | Transistor                 | R405            | ERDS2TJ183   | Metal 18K ohms 1/4W   |
| Q624                               | 2SB1383     | Transistor                 | R406            | ERDS2TJ511   | Metal 510 ohms 1/4W   |
| Q626                               | 2SD2083     | Transistor                 | R407,408        | ER0S2CKF2700 | Metal 2.7K ohms 1/4W  |
| Q627,628                           | 2SC3116     | Transistor                 | R409-412        | ER0S2CKF2201 | Metal 2.2K ohms 1/4W  |
| Q629,630                           | 2SA1248     | Transistor                 | R413-416        | ER0S2CKF36R0 | Metal 22 ohms 1/4W    |
| Q631                               | BS08A       | Transistor                 | R417            | ER0S2CKF2201 | Metal 2.2K ohms 1/4W  |
| Q632,633                           | 2SC2631-RS  | Transistor                 | R418,421        | ERDS2TJ512   | Carbon 5.1K ohms 1/4W |
| Q634                               | 2SC2634-ST  | Transistor                 | R422,423        | ER0S2CKF33R0 | Metal 22 ohms 1/4W    |
| Q635                               | 2SA1127-ST  | Transistor                 | R424            | ER0S2CKF4700 | Metal 470 ohms 1/4W   |
| Q636,637                           | 2SC2634-ST  | Transistor                 | R425,426        | ER0S2CKF2402 | Metal 24K ohms 1/4W   |
| D401,402                           | YWHSEB2TD   | Diode                      | R430,431        | ER0S2CKF22R0 | Metal 22 ohms 1/4W    |
| D403-406                           | MA165       | Diode                      | R432,433        | ERDS2TJ273   | Carbon 27K ohms 1/4W  |
| D407                               | MA188       | Diode                      | R434,435        | ERDS2TJ102   | Carbon 1K ohms 1/4W   |
| D408,409                           | MA165       | Diode                      | R438-443        | ERDS2FJ2R2   | Carbon 2.2 ohms 1/4W  |
| D410                               | MA188       | Diode                      | R444-449        | ERDS2TJ102   | Carbon 1K ohms 1/4W   |
| D411-414                           | MA165       | Diode                      | R450            | ER0S2CKF33R0 | Metal 33 ohms 1/4W    |
|                                    |             |                            | R451-456        | ERF5AKR27    | Metal 0.27 ohms       |

| REF.NO.  | PART NO.     | DESCRIPTION |                | REF.NO.   | PART NO.     | DESCRIPTION       |                    |
|----------|--------------|-------------|----------------|-----------|--------------|-------------------|--------------------|
| R457     | ERDS2TJ621   | Carbon      | 620 ohms 1/4W  | R657      | ERDS2TJ621   | Carbon            | 620 ohms 1/4W      |
| R458     | ERDS2TJ102   | Carbon      | 1K ohms 1/4W   | R658      | ERDS2TJ102   | Carbon            | 1K ohms 1/4W       |
| R460     | ERDS2TJ102   | Carbon      | 1K ohms 1/4W   | R660      | ERDS2TJ102   | Carbon            | 1K ohms 1/4W       |
| R461     | ERDS2TJ432   | Carbon      | 4.3K ohms 1/4W | R661      | ERDS2TJ432   | Carbon            | 4.3K ohms 1/4W     |
| R462,463 | ERDS2TJ472   | Carbon      | 4.7K ohms 1/4W | R662,663  | ERDS2TJ472   | Carbon            | 4.7K ohms 1/4W     |
| R464     | ERDS2TJ222   | Carbon      | 2.2K ohms 1/4W | R664      | ERDS2TJ222   | Carbon            | 2.2K ohms 1/4W     |
| R465     | ERDS2TJ511   | Metal       | 510 ohms 1/4W  | R665      | ERDS2TJ511   | Metal             | 510 ohms 1/4W      |
| R466     | ERDS2TJ103   | Carbon      | 10K ohms 1/4W  | R666      | ERDS2TJ103   | Carbon            | 10K ohms 1/4W      |
| R467     | ERDS2TJ222   | Carbon      | 2.2K ohms 1/4W | R667      | ERDS2TJ222   | Carbon            | 2.2K ohms 1/4W     |
| R468     | ERDS2TJ432   | Carbon      | 4.3K ohms 1/4W | R668      | ERDS2TJ432   | Carbon            | 4.3K ohms 1/4W     |
| R469,470 | ERDS2TJ472   | Carbon      | 4.7K ohms 1/4W | R669,670  | ERDS2TJ472   | Carbon            | 4.7K ohms 1/4W     |
| R471     | ERDS2TJ222   | Carbon      | 2.2K ohms 1/4W | R671      | ERDS2TJ222   | Carbon            | 2.2K ohms 1/4W     |
| R472     | ERDS2TJ511   | Metal       | 510 ohms 1/4W  | R672      | ERDS2TJ511   | Metal             | 510 ohms 1/4W      |
| R473     | ERDS2TJ103   | Carbon      | 10K ohms 1/4W  | R673      | ERDS2TJ103   | Carbon            | 10K ohms 1/4W      |
| R474     | ERDS2TJ222   | Carbon      | 2.2K ohms 1/4W | R674      | ERDS2TJ222   | Carbon            | 2.2K ohms 1/4W     |
| R475     | ERX3SJ6R8P   | Metal       | 6.8 ohms 1/4W  | R675      | ERX3SJ6R8P   | Metal             | 6.8 ohms 1/4W      |
| R476,477 | ERX3SJ2R4    | Metal       | 2.4K ohms 1/4W | R676,677  | ERX3SJ2R4    | Metal             | 2.4 ohms 1/4W      |
| R478     | ERDS2TJ223   | Carbon      | 22K ohms 1/4W  | R678      | ERDS2TJ223   | Carbon            | 22K ohms 1/4W      |
| R479     | ERDS2TJ103   | Carbon      | 10K ohms 1/4W  | R679      | ERDS2TJ103   | Carbon            | 10K ohms 1/4W      |
| R480     | ERDS2TJ222   | Carbon      | 2.2K ohms 1/4W | R680      | ERDS2TJ222   | Carbon            | 2.2K ohms 1/4W     |
| R481     | ERDS2TJ104   | Carbon      | 100K ohms 1/4W | R681      | ERDS2TJ104   | Carbon            | 100K ohms 1/4W     |
| R482     | ERDS2TJ223   | Carbon      | 22K ohms 1/4W  | R682      | ERDS2TJ223   | Carbon            | 22K ohms 1/4W      |
| R483     | ERDS2TJ392   | Carbon      | 3.9K ohms 1/4W | R683      | ERDS2TJ392   | Carbon            | 3.9K ohms 1/4W     |
| R484     | ERDS2TJ223   | Carbon      | 22K ohms 1/4W  | R684      | ERDS2TJ223   | Carbon            | 22K ohms 1/4W      |
| R485     | ERDS2TJ104   | Carbon      | 100K ohms 1/4W | R685      | ERDS2TJ104   | Carbon            | 100K ohms 1/4W     |
| R486     | ERDS2TJ223   | Carbon      | 22K ohms 1/4W  | R686      | ERDS2TJ223   | Carbon            | 22K ohms 1/4W      |
| R487     | ERDS2TJ101   | Carbon      | 100 ohms 1/4W  | R687      | ERDS2TJ101   | Carbon            | 100 ohms 1/4W      |
| R488     | ERDS2TJ104   | Carbon      | 100K ohms 1/4W | R688      | ERDS2TJ104   | Carbon            | 100K ohms 1/4W     |
| R489     | ERDS2TJ223   | Carbon      | 22K ohms 1/4W  | R689      | ERDS2TJ223   | Carbon            | 22K ohms 1/4W      |
| R490     | ERDS2TJ392   | Carbon      | 3.9K ohms 1/4W | R690      | ERDS2TJ392   | Carbon            | 3.9K ohms 1/4W     |
| R491     | ERDS2TJ222   | Carbon      | 2.2K ohms 1/4W | R691      | ERDS2TJ222   | Carbon            | 2.2K ohms 1/4W     |
| R492     | ERDS2TJ683   | Carbon      | 68K ohms 1/4W  | R692      | ERDS2TJ683   | Carbon            | 68K ohms 1/4W      |
| R493     | ERDS2TJ752   | Carbon      | 7.5K ohms 1/4W | R693      | ERDS2TJ752   | Carbon            | 7.5K ohms 1/4W     |
| R496     | EROS2CKF6800 | Metal       | 680 ohms 1/4W  | R696      | EROS2CKF6800 | Metal             | 680 ohms 1/4W      |
| R497-499 | EROS2CKF1802 | Metal       | 18K ohms 1/4W  | R697-699  | EROS2CKF1802 | Metal             | 18K ohms 1/4W      |
| R601     | EROS2CKF3601 | Metal       | 3.6K ohms 1/4W | VR401,601 | EVND4AA00B32 | Variable Resistor | 300 ohms           |
| R603     | ERDS2TJ104   | Carbon      | 100K ohms 1/4W | C401      | YWRBA16S330  | Electrolytic      | 33 $\mu$ F 16V     |
| R604     | ERDS2TJ511   | Metal       | 510 ohms 1/4W  | C402      | ECCF1H470JC  | Ceramic           | 47 pF 50V          |
| R605     | ERDS2TJ183   | Metal       | 18K ohms 1/4W  | C403,404  | YWRA225S471  | Electrolytic      | 470 $\mu$ F 25V    |
| R606     | ERDS2TJ511   | Metal       | 510 ohms 1/4W  | C407      | YWRBA10S221  | Electrolytic      | 220 $\mu$ F 10V    |
| R607,608 | EROS2CKF2700 | Metal       | 270 ohms 1/4W  | C408      | ECCF2H180J   | Ceramic           | 18 pF 500V         |
| R609-612 | EROS2CKF2201 | Metal       | 2.2K ohms 1/4W | C411      | YWR0A10T101  | Electrolytic      | 100 $\mu$ F 10V    |
| R613-616 | EROS2CKF36R0 | Metal       | 22 ohms 1/4W   | C412      | ECQV1H104JZ  | Plastic           | 0.1 $\mu$ F 50V    |
| R617     | EROS2CKF2201 | Metal       | 2.2K ohms 1/4W | C413      | ECEA2AU100   | Electrolytic      | 10 $\mu$ F 100V    |
| R618,621 | ERDS2TJ512   | Carbon      | 5.1K ohms 1/4W | C414      | ECQE1104KF   | Plastic           | 0.1 $\mu$ F 100V   |
| R622,623 | EROS2CKF33R0 | Metal       | 22 ohms 1/4W   | C415      | ECEA2AU100   | Electrolytic      | 10 $\mu$ F 100V    |
| R624     | EROS2CKF4700 | Metal       | 470 ohms 1/4W  | C416      | ECQE1104KF   | Plastic           | 0.1 $\mu$ F 100V   |
| R625,626 | EROS2CKF2402 | Metal       | 24K ohms 1/4W  | C417,418  | ECCF2H271J   | Ceramic           | 270 pF 500V        |
| R630,631 | EROS2CKF22R0 | Metal       | 22 ohms 1/4W   | C419,420  | ECQB1H222JZ  | Plastic           | 0.1 $\mu$ F 100V   |
| R632,633 | ERDS2TJ273   | Carbon      | 27K ohms 1/4W  | C421      | ECEA1HU100   | Electrolytic      | 10 $\mu$ F 50V     |
| R634,635 | ERDS2TJ102   | Carbon      | 1K ohms 1/4W   | C422      | ECEA2AU100   | Electrolytic      | 10 $\mu$ F 100V    |
| R638-643 | ERDS2FJ2R2   | Carbon      | 2.2 ohms       | C423      | ECEA1HU100   | Electrolytic      | 10 $\mu$ F 50V     |
| R644-649 | ERDS2TJ102   | Carbon      | 1K ohms 1/4W   | C424      | ECEA2AU100   | Electrolytic      | 10 $\mu$ F 100V    |
| R650     | EROS2CKF33R0 | Metal       | 22 ohms 1/4W   | C425      | ECQE2333KF   | Plastic           | 0.033 $\mu$ F 200V |
| R651-656 | ERF5AKR27    | Metal       | 0.27 ohms 5W   | C426      | ECEA0JN101S  | Electrolytic      | 100 $\mu$ F 6.3V   |

| REF.NO.   | PART NO.     | DESCRIPTION      |                      | REF.NO.                                | PART NO.     | DESCRIPTION                  |
|-----------|--------------|------------------|----------------------|----------------------------------------|--------------|------------------------------|
| C427      | ECEA1EU101   | Electrolytic     | 100 $\mu$ F 25V (SU) | <b>ACCESSORY PARTS/PACKAGING PARTS</b> |              |                              |
| C428      | ECEA0JN101S  | Electrolytic     | 100 $\mu$ F 6.3V     |                                        |              |                              |
| C430,431  | ECCF2H271J   | Ceramic          | 270 pF 500V          | M40                                    | YWA8QA2630AN | Operating Instructions       |
| C434,435  | ECEA2AU100   | Electrolytic     | 10 $\mu$ F 100V      | M42,43                                 | XZB26X40C05  | Polyethylene Bag             |
| C436      | ECQV1H104JZ  | Plastic          | 0.1 $\mu$ F 50V      | M44                                    | YWA8EA0085A4 | Polyethylene Bag             |
| C601      | YWRBA16S330  | Electrolytic     | 33 $\mu$ F 16V       | M45                                    | YWA9CA1735AN | Packaging Assy for WP-1200/B |
| C602      | ECCF1H470JC  | Ceramic          | 47 $\mu$ F 50V       |                                        | YWA9CA1732AN | Packaging Assy for WP-1200/G |
| C603,604  | YWRA225S471  | Electrolytic     | 470 $\mu$ F 25V      |                                        | YWA9CA1734AN | Packaging Assy for WP-1400/B |
| C607      | YWRBA10S221  | Electrolytic     | 220 $\mu$ F 10V      |                                        | YWA9CA1731AN | Packaging Assy for WP-1400/G |
| C608      | ECCF2H180J   | Ceramic          | 18 pF 500V           |                                        |              |                              |
| C611      | YWR0A10T101  | Electrolytic     | 10 $\mu$ F 100V      |                                        |              |                              |
| C612      | ECQV1H104JZ  | Plastic          | 0.1 $\mu$ F 50V      |                                        |              |                              |
| C613      | ECEA2AU100   | Electrolytic     | 10 $\mu$ F 100V      |                                        |              |                              |
| C614      | ECQE1104KF   | Plastic          | 0.1 $\mu$ F 100V     |                                        |              |                              |
| C615      | ECEA2AU100   | Electrolytic     | 10 $\mu$ F 100V      |                                        |              |                              |
| C616      | ECQE1104KF   | Plastic          | 0.1 $\mu$ F 100V     |                                        |              |                              |
| C617,618  | ECCF2H271J   | Ceramic          | 270 pF 500V          |                                        |              |                              |
| C619,620  | ECQB1H222JZ  | Plastic          | 2200 pF 50V          |                                        |              |                              |
| C621      | ECEA1HU100   | Electrolytic     | 10 $\mu$ F 50V       |                                        |              |                              |
| C622      | ECEA2AU100   | Electrolytic     | 10 $\mu$ F 100V      |                                        |              |                              |
| C623      | ECEA1HU100   | Electrolytic     | 10 $\mu$ F 50V       |                                        |              |                              |
| C624      | ECEA2AU100   | Electrolytic     |                      |                                        |              |                              |
| C625      | ECQE2333KF   | Plastic          |                      |                                        |              |                              |
| C626      | ECEA0JN101S  | Electrolytic     | 100 $\mu$ F 6.3V     |                                        |              |                              |
| C627      | ECEA1EU101   | Electrolytic     | 100 $\mu$ F 25V (SU) |                                        |              |                              |
| C628      | ECEA0JN101S  | Electrolytic     | 100 $\mu$ F 6.3V     |                                        |              |                              |
| C630,631  | ECCF2H271J   | Ceramic          | 270 pF 500V          |                                        |              |                              |
| C634,635  | ECEA2AU100   | Electrolytic     | 10 $\mu$ F 100V      |                                        |              |                              |
| C636      | ECQV1H104JZ  | Plastic          | 0.1 $\mu$ F 50V      |                                        |              |                              |
| L401,601  | YWALCA0045A4 | Coil             | 1.2 $\mu$ H          |                                        |              |                              |
| F1-8      | YWULTSC10AN1 | Current Fuse     | 8A                   |                                        |              |                              |
| CN401     | YWB11BEH     | 11-pin Connector |                      |                                        |              |                              |
| CN402     | YWB9P-VH     | 9-pin Connector  |                      |                                        |              |                              |
| CN403     | YWB11BEH     | 11-pin Connector |                      |                                        |              |                              |
| CN404,604 | YWB3BEH      | 3-pin Connector  |                      |                                        |              |                              |
| E400      | YWH00162     | FuseHolder       |                      |                                        |              |                              |
| M18       | YWA7DA0294A2 | Heat Sink        |                      |                                        |              |                              |
| M19       | YWA2PB0474A3 | Insulator        |                      |                                        |              |                              |
| M20       | YWA2PA0474A3 | Insulator        |                      |                                        |              |                              |
| M21       | YWA2SA1910A3 | Mounting Angle   |                      |                                        |              |                              |
| M28       | YWA2NA0361A4 | Spacer           |                      |                                        |              |                              |